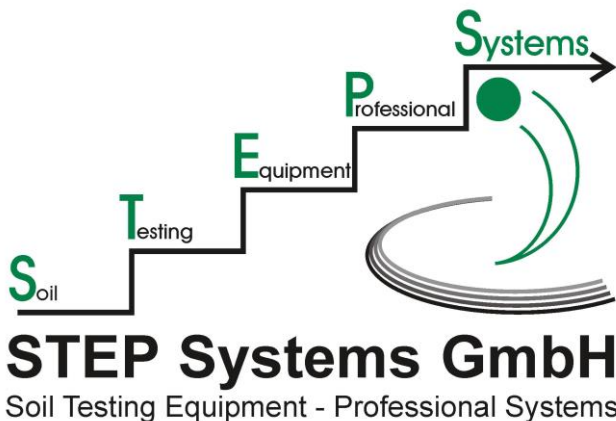
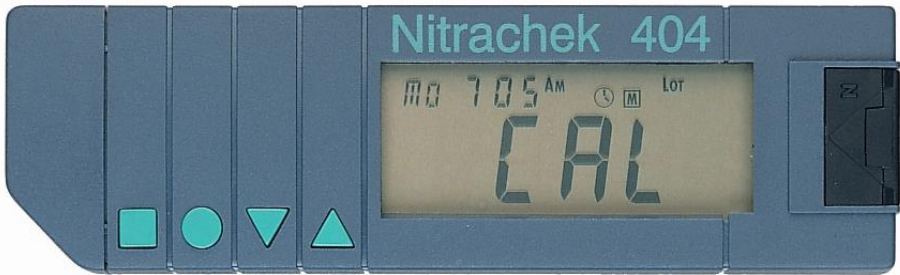


Operation Manual

Nitrachek 404





Nitratechek 404 measures nitrate in
plant
soil
water



The test- strips are pre- tested.
A sticker on the container shows the lot number that must be displayed on Nitratechek, before starting measuring.

Range = 5 à 500 mg/ l NO₃ (+/- 10 %)
Accuracy is higher in the middle of the range (50 – 250 mg/ l)



A plastic checker allows test the meter.

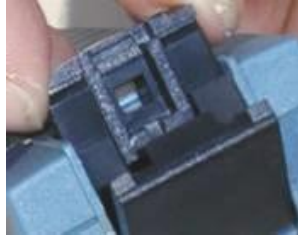


A standard solution, delivered with the strips, allows training and testing the whole procedure.

Dipping time = 2 s .

Get rid of a standard solution tube after 10 tests.

Nitrachek description



Hatch, finger, strip carrier



2 diodes and mirror



Sliding switch to switch off the beeper



9 V battery compartment

Battery

Hatch must be closed when battery is changed.



Remove the battery, if the meter is not to be used during several months.

If battery is changed within 30 seconds , datas are kept in memory.

EEE message when battery is flat.

If one actions the hatch when the battery is flat, no more display can happen.

Invert replacement battery polarity during 3 seconds (in this case only)

before connecting this new battery the right way.



A battery icon is displayed when battery gets weak.

EEE message when battery is flat.

If one actions the hatch when the battery is flat, no more display can happen.

Invert replacement battery polarity during 3 seconds (in this case only) before connecting this new battery the right way.

Clock functions



Adjusting the date :

Open the hatch and wait for CAL

Press round button twice: CLOC is displayed

Press square then round button : year flashes

Arrow button to change year

Round button : day flashes

Arrow button to change day and month

Press square to complete procedure.

Adjusting the time :

Open the hatch and wait for CAL

Press round button twice: CLOC is displayed

Press square button : time flashes

Arrow button to change time

Press square as soon as displayed time is correct

Close hatch.

Do not clap



Yes



No

Enter lot number



Each strip box wears a sticker showing the lot number to be displayed according to room temperature.



To enter or modify the lot number, open the hatch, press an arrow button, to increase or decrease the lot number, displayed in top right corner.



Close the hatch to save the new lot number.



Meter switches off.

Error message / checker



Error message



Test is carried on only on **lot number 5**.



White side first, then grey side



Result should be within the limits printed at the back of the meter

Storage and handling of test strip



Storage < 1 month : dry, 15 °c
Storage > 1 month : 4 – 8 °c

Container is always closed

Container is always closed.



Close container immediatly

Calibration – Dipping



Open the hatch. The display briefly shows 8 8 8 8, then "CAL"
Lot number flashes.

Insert test strip in strip carrier
Pad downwards and facing the
towards the meter body.

Close smoothly the hatch . Sign " ---"
displays.

If calibration is accepted, the meter
beeps twice and displays "GO"
If not, "Err" is displayed



1 st beep : dip the strip

Dipping duration = 2 seconds
exactly

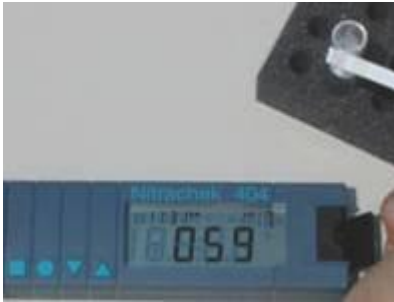
Only when everything is ready, open
the hatch.

Exactly at 1 st beep, dip test strip in
solution.

Dipping lasts for 2 seconds exactly, not
more, not less,
between 1 st bip and 3 rd bip (longer
beep)



3 rd beep : remove



Shake the strip during 3 – 4 seconds to remove any remaining excess solution.



Let the strip react . Do not touch, wipe or dab the test strip.



Within the 10 last seconds of countdown (not before) put the strip on edge (only on edge) on an absorbing paper during 1 second only , to allow capilarity absorption of remaning solution.

This to avoid polluting the strip carrier
Insert test strip in strip carrier



Close smootly the hatch before the end of countdown.

You shouldn' t see the "SHUT" message.
Display " - - -" then result in mg/ l NO3 (or ppm)

Results



If result > 500 mg/ l NO₃



If result < 5 mg/ l NO₃

3 measures per sample

Calculate the average of 3 measures.

Example : 294 , 278, 300. Average = 290 mg/ l

Check that the 3 measures are within limits of : -and + 10 % of this average.

Verification +/- 10 % : 261 – 319

The 3 measures are in the range 261 - 319.

Average is valid.

If the juice had been diluted 1/ 10, content = 2900 mg/ L NO₃.

**20 last results
in memory**



Day
TH

Time
9:37 AM

Memory
M

Week
Wk 2

47 ppm

Result in mg/ L

3 results on same sample



Maintenance - cleaning

Manipulate this instrument with care.
Avoid mechanical shocks, high or low temperatures, humidity.
Do not let moisture deteriorate the meter.



**Remove
battery
before
cleaning.**



Determination of the correction factor

1. Choose LOT number 5
2. Make 3 single measurements with calibration solution 100 mg/l NO₃
3. Calculate the average value of the 3 measurements
4. Correction factor KF = 100 : average value

Choose the LOT number according to your correction factor:

How to do a corrected measurement:

- Open the hatch on the right side
- Choose the LOT number according to the table on the right and select it in the device's setting with the ▲▼- buttons.
- Insert test strip in strip carrier and close the hatch.
- When „GO“ appears in the display, open the hatch again. Take the strip and dip it immediately for 2 sec. into the solution to be tested. Shake off remaining solution
- Meanwhile, the device counts down from 60 to 0. Having reached 5 (sec.), insert the test strip again and close the hatch.
- The display now shows the corrected result.

KF	LOT Number
< 0,83	1
0,83 – 0,87	2
0,88 – 0,92	3
0,93 – 0,97	4
0,98 – 1,02	5
1,03 – 1,07	6
1,08 – 1,12	7
1,13 – 1,17	8
> 1,18	9

Attention:

If the determined correction factor is lower 0.8 or higher 1.2, it is advisable to choose LOT 5 for measurement and correct the measured value manually (calculator).

Correction factors of such extreme values appear very rarely.

How to measure nitrate content with test strips

Sample preparation

Soil samples:

The most important foundation for measuring the nitrate content in soil exactly is to take a representative sample.

We recommend to take 30-40 single samples per hectare, for testing smaller areas, take at least 5 single samples (either with a soil sampler or with a spade) in 0-30 cm depth, lawn areas are sampled in a depth of 0-10 cm.

Put them all into a clean bowl or bucket and mix the soil thoroughly.

The mixed sample is now ready for use. Weigh out the required sample amount for analysis and attend the extraction ratio of 1 : 1 (1 part sample : 1 part distilled water).

If Round filter papers are missing, you can also use coffee filter papers (filtration of loamy soils will take more time).

Fruits and vegetables:

For simple measurement, cut through the sample and moisturize the test strip on the cut surface. Exact measurements require a plantjuice sample.

Therefore press a sample of 10 ml juice out of the fresh matter, add 100 ml distilled water. Filter the dilution and measure it as mentioned for soil samples. Read the result from the colour scale on the test strip packing and multiply it by 10 (because of dilution).

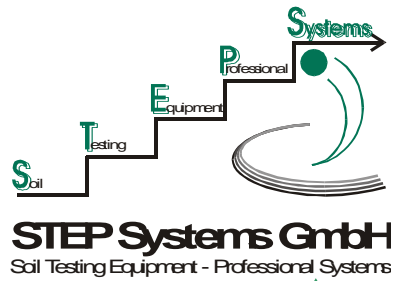
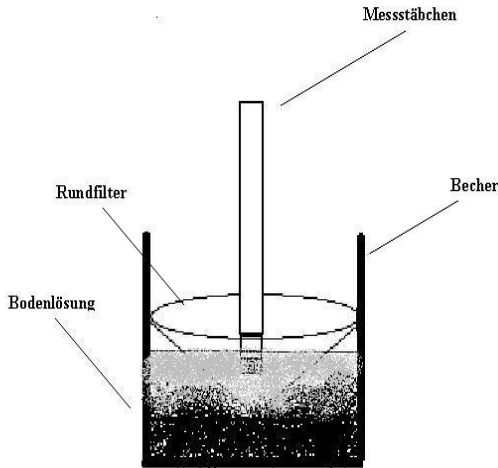
Unit of the value is mg nitrate / kg fresh matter.

The evaluation of the result for fertilizing measures depends from the nitrogen requirement of the sampled plant, furthermore from the used fertilizer etc.

Please attend to the manufacturers instructions on the fertilizer packing.

Maximum permissible values:

<i>tap- and irrigation water</i>	<i>50 mg / Liter</i>
<i>soil, compost, greenhouse</i>	<i>100 mg / Liter</i>
<i>plant juice, fruits and vegetable</i>	<i>250 mg / Liter</i>



- fill 100 g soil into the sample beaker
- add 100 ml of distilled water
- mix sample thoroughly until there are no more clumps in the solution.
- wait 10 minutes, then place from above a round filter into the beaker. The solution will now enter inside the filter.
- dip the nitrate test strip into this filtered solution for 1 sec.
- wait 1 min., then compare the discoloration of the test strip to the colour scale on the packing to read the nitrate content.
- the measured value is kg N/ha in the sampled soil layer.