

# User Manual for Chemical Methods **PHOTOPOD:** numerical photometer



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**I-010 – Cyanuric Acid: 10 - 200 mg/l**

Reagent kit: 1MT130  
Preparation time: ~ 5min

Photopod

**LS***REAGENTS*

Cyanuric Acid Reagent 1RA020

*EQUIPMENT*

Graduated Plastic Tube 14TP00  
Glass Tube 1CR099  
Plastic funnel 1EP021 (*consult us*)

*TEST INSTRUCTIONS*

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 30 drops of cyanuric acid reagent  
Close and shake vigorously.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 5 minutes.  
Proceed to the measurement

*MEASUREMENT*

Select the analysis **010 Cya.Ac. : 10 - 200mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer.  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT301.*

## I-011- Cyanuric Acid: 10 - 200 mg/l

Reagent kit: 1MT048  
Preparation time: ~5min

Photopod

SP

### REAGENTS

Cyanuric Acid Tablets 1CA008

### EQUIPMENT

Graduated Plastic Tube 14TP00  
Crushing Rod 1AP018  
Glass Tube 1CR099  
Plastic funnel 1EP021 (*consult us*)

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Cyanuric Acid Tablet then wait 2 minutes dissolution  
Close the tube and shake vigorously for 2 min  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 1 minute.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **011 Cya.Ac. : 10 - 200mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT302.*

## I-020-p-Alkalinity TA: 2.0- 50.0°F

Reagent kit: 1MT134  
Preparation time: ~ 6min



### REAGENTS

Alkaphot P Tablets 1AP251

### EQUIPMENT

Graduated Plastic Tube 14TP00  
Crushing Rod 1AP018  
Glass Tube 1CR099  
Plastic funnel 1EP021 (*consult us*)

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Alkaphot P tablet, crush it with the crushing rod and shake till it is dissolved.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 4 minutes.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **020 TA: 2.00- 50.0 °F**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT045.*

**I-030-m-Alkalinity TAC: 2.0-50.0 °F**

Reagent kit: 1MT135  
Preparation time: ~ 5min

Photopod  
**LS/SP**

*REAGENTS*

Alkaphot M Tablet 1AP250

*EQUIPMENT*

Graduated Plastic Tube 14TP00  
Crushing Rod 1AP018  
Glass Tube 1CR099  
Plastic funnel 1EP021 (*consult us*)

*TEST INSTRUCTIONS*

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1Alkaphot M tablet, crush it with the crushing rod and shake till it is dissolved.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Tap the tube to remove the bubbles.  
Wait 3 minutes.  
Proceed to the measurement

*MEASUREMENT*

Select the analysis **030 TAC: 2.0- 50.0 °F**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT046.*



## I-040- Aluminum: 0.05 - 3.00 mg/l

Reagent kit: 1MT136  
Preparation time: ~ 5min

Photopod

LS

### REAGENTS

AluminiumbufferReagent	1RA010
Aluminium 1Reagent	1RA021
Aluminium 2Reagent	1RA030

### EQUIPMENT

Glass Tube	1CR099
Syringe 10 ml	1SU013

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in a glass tube  
Add 6 drops of Aluminiumbuffer Reagent  
Close and shake.  
Add 6 drops of Aluminium 1Reagent  
Close and shake.  
Add 12 drops of Aluminium 2Reagent  
Close and shake.  
Wait 4 minutes.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **040 Al: 0.05 - 3.00 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

### Calculate concentration in sample:

$$\text{Aluminium mg/l} = \text{measured value} - 0.54$$

*Please note that the refill kit's reference is 1MT303.*

## I-041 - Aluminum: 0.20- 3.00 mg/L Al

Reagent kit: 1MT001  
Preparation time: ~ 9min

Photopod

SP

### REAGENTS

Aluminum Tablets n°1 and n°2	1AP166
Demineralized water	1ED010

### EQUIPMENT

Graduated Plastic Tube	14TP00*2
Glass Tube	1CR099
Crushing Rod	1AP018
Syringe 1 ml	1SU010
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 1 ml sample of water to analyze using the syringe, put it in the graduated plastic tube. Fill the Tube with demineralized water up to the 10 ml mark.

Put the cap and shake.

Add 1 Aluminum n°1 tablet, crush it with the crushing rod for 2 min and shake till it is dissolved.

After complete dissolution of the tablet N°1, add 1 Aluminum n°2 tablet, crush it with the crushing rod and mix gently to dissolve by turning the tube. Mix by means of the rod to dissolve well the tablet and degas completely the mixture.

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Wait 5 minutes after crushing the Aluminum n°2 tablet (All the bubbles stemming from the effervescence must have disappeared).

Proceed to the measurement.

### MEASUREMENT

Select the analysis **041 Al: 0.20- 3.00mg/L**

In another graduated plastic tube introduce 1 ml sample of water to analyze

Fill the Tube to the 10 ml mark with demineralized water.

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Put the black cover on top of the tube and press the key « zero »

Remove the tube and put the sample tube to analyze

Put the black cover on top of the tube and press the key « measure »

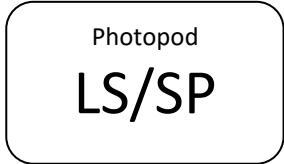
NOTA - Interference: Fluoride and Polyphosphates

*Please note that the refill kit's reference is 1MT304.*



**I-060 - Ammonium: 0.08 - 1.60 mg/l NH<sub>4</sub>-N**  
METHOD COMPATIBLE WITH SEA WATER

Reagent kit: 1MT193 (or 1MT003 for sea water)  
Preparation time: ~ 11min



*REAGENTS*

Ammonia tablets 1 and 2	1AP152
Ammonia Conditioning Reagent	1AT170

*EQUIPMENT*

Graduated Plastic Tube	14TP00
Glass Tube	1CR099
Crushing Rod	1AP018
Plastic funnel	1EP021 ( <i>consult us</i> )

*TEST INSTRUCTIONS*

Take a 10 ml sample of water to analyze in the graduated plastic tube.

*If sample is sea water, add 1 spoonful of Ammonia Conditioning Reagent, shake to dissolve ~1min.*

*If turbidity appears, add 2 other spoonful of Ammonia Conditioning Reagent, shake to dissolve ~2 min.*

Add the ammonia tablets 1 and 2, crush them with the crushing rod and shake to dissolve.

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Wait 10 minutes.

Proceed to measurement

*MEASUREMENT*

Select the analysis **060 NH<sub>4</sub>-N: 0.08-1.60mg/L** (*Result in mg/L of N*)

Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer

Put the black cover on top of the tube and press the key « zero »

Remove the tube and put the sample tube to analyze

Put the black cover on top of the tube and press the key « measure »

**To obtain the result as mg/L of NH<sub>4</sub><sup>+</sup>, multiply the result by 1.3**

NB: If concentration is higher than 2 mg/l, the green color will be too strong and measurement won't be done. In this case, proceed to a dilution of the sample before adding reagents.

*Please note that the refill kit's reference is 1MT306.*

*For sea water, the reference is 1MT358.*

**I-061 - Ammonium: 0.20 - 4.80 mg/L N-NH<sub>4</sub>**

Reagent kit: 1MT002  
Preparation time: ~ 6 min

Photopod

**LS***REAGENTS*

Seignette Salt Reagent	1SD010
Nessler Reagent	1RD002

*EQUIPMENT*

Glass Tube	1CR099
Syringe 10 ml	1SU013

*TEST INSTRUCTIONS*

Take a 10 ml sample of water to analyze in the glass tube  
Add 6 drops of Seignette Salt Reagent  
Close and shake.  
Add 6 drops of Nessler Reagent  
Close and shake.  
Wait 5 minutes  
Proceed to the measurement

*MEASUREMENT*

Select the analysis **061 NH<sub>4</sub>-N: 0.30 - 4.80 mg/L (Result in mg/L of N)**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**To obtain the result as mg/L of NH<sub>4</sub><sup>+</sup>, multiply the result by 1.3**

*Please note that the refill kit's reference is 1MT305.*

## I-062 - Ammonium: 0.80 - 24.0 mg/l N-NH<sub>4</sub>

Reagent kit: 1MT002  
Preparation time: ~ 6 min

Photopod

LS

### REAGENTS

Seignette Salt Reagent	1SD010
Nessler Reagent	1RD002

### EQUIPMENT

Graduated Plastic Tube	14TP00
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 12.5 ml sample of water to analyze in the graduated plastic tube.  
Add 8 drops of Seignette Salt  
Close the tube and shake.  
Add 8 drops of Nessler Reagent  
Close the tube and shake.  
Wait 5 minutes  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

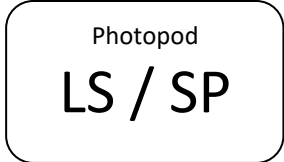
Select the analysis **062 NH<sub>4</sub>-N: 1.0 - 24 mg/L** (*Result in mg/L of N*)  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**To obtain the result as mg/L of NH<sub>4</sub><sup>+</sup>, multiply the result by 1.3**

*Please note that the refill kit's reference is 1MT305.*

## I-063-AmmoniumLR: 0.02-5 mg/L NH<sub>4</sub><sup>+</sup>-N

Reagent Kit: FTI535600  
Preparation Time: ~ 6 min



### REAGENTS

Ammonia LR NH<sub>4</sub><sup>+</sup> tubes  
Vario Ammonia Salicylate F5 Powder Pack  
Vario Ammonia Cyanurate F5 Powder pack  
Demineralized water 1ED010

### RECOMMENDED EQUIPMENT (consult us)

Automatic Pipette 1 - 5 ml 1PA023  
Pipette Tip 1 - 5 ml 1EU013  
24 tubes stand Ø16 1PT013

### TEST INSTRUCTIONS

Take 2 Ammonia LR NH<sub>4</sub><sup>+</sup>tubes: one for the blank, the other for the sample.  
With the pipette, put 2 ml of demineralized water in the blank tube.  
Likewise, put 2 ml of water to analyze in the sample tube.  
Add the content of oneVario Ammonia Salicylate F5 Powder pack in each tube then add the content of oneVario Ammonia Cyanurate F5 Powder pack in each tube, close, and shake the tube for 30 seconds.  
Wait 10 minutes.  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **063 NH<sub>4</sub>-N: 0.02 - 5 mg/L**  
Take the tube for the blank and insert it in the photometer.  
Put the black cover on top of the tube and press the key « zero ».  
Remove the tube and put the sample tube to analyze.  
Put the black cover on top of the tube and press the key « measure ».

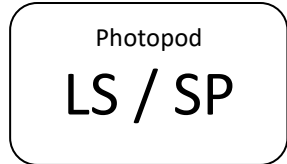
**To have the result as mg/l NH<sub>4</sub><sup>+</sup>, multiply the result by 1.3**

### INTERFERENCE

For strong alkaline or acidic water, you must adjust the pH at 7 by using hydrochloric acid 1 mol/L (if pH>7) or sodium hydroxide 1mol/L (if pH<7).  
Iron interferes with the test.

## I-064 - Ammonium HR: 0.5-50 mg/L NH<sub>4</sub><sup>+</sup>-N

Reagent Kit : FTI535650  
Temps de préparation : ~ 6 min



### REAGENTS

Ammonia HR NH<sub>4</sub><sup>+</sup> tubes  
Vario Ammonia Salicylate F5 Powder Pack  
Vario Ammonia Cyanurate F5 Powder pack  
Demineralized water 1ED010

### RECOMMENDED EQUIPMENT (consult us)

Automatic pipette 0.1 - 1 ml 1PA022  
Pipette Tip 0,1 - 1 ml 1EU012  
24 tubes stand Ø16 1PT013

### TEST INSTRUCTIONS

Take 2 Ammonia HR NH<sub>4</sub><sup>+</sup>tubes: one for the blank, the other for the sample.  
With the pipette, put 0.1 ml of demineralized water in the blank tube.  
Likewise, put 0.1 ml of water to analyze in the sample tube.  
Add the content of oneVario Ammonia Salicylate F5 Powder pack in each tube then add the content of oneVario Ammonia Cyanurate F5 Powder packin each tube, close, and shake the tube for 30 seconds.  
Wait 10 minutes.  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **064 NH<sub>4</sub>-N: 0.5 - 50 mg/L**  
Take the tube for the blank and insert it in the photometer.  
Put the black cover on top of the tube and press the key « zero ».  
Remove the tube and put the sample tube to analyze.  
Put the black cover on top of the tube and press the key « measure ».

**To have the result as mg/l NH<sub>4</sub><sup>+</sup>, multiply the result by 1.3**

### INTERFERENCE

For strong alkaline or acidic water, you must adjust the pH at 7 by using hydrochloric acid 1 mol/L (if pH>7) or sodium hydroxide 1mol/L (if pH<7).  
Iron interferes with the test.



**I-072-Total NitrogenLR: 0.3-20 mg/L N**

Reagents kit reference: FTI2420703  
Preparation time: ~ 80 min

Photopod  
LS / SP

**REAGENTS**

Digestion tubes (empty tubes)  
Blank tube (red label)  
Reaction tubes  
Digestion Reagent  
Compensation Reagent  
Nitrate-111

**RECOMMENDED EQUIPMENT (consult us)**

Automatic pipette 0,1 - 1 ml	1PA022
Pipette Tip 0,1 - 1 ml	1EU012
Automatic Pipette 1 - 5 ml	1PA023
Pipette Tip 1 - 5 ml	1EU013
24 tubes stand Ø16	1PT013
Wooden clamp	1PT007
Heating reactor	1RD010

**TEST INSTRUCTIONS**

Turn on the heating reactor. Preheat at 100 °C.  
Take one Digestion tube.  
With the pipette, put 5 ml of water to analyze in the tube.  
Add 1 level scoop of No. 8 (black) digestion reagent, close, and shake for 30 seconds.  
Put the tube in the reactor for 60 minutes at 100°C.  
Remove the tube from the thermoreactor with the wooden clamp. (CAUTION: the tubes are hot!). Place the tube in the tube stand and allow to cool to room temperature.  
Add 1 level scoop of No. 4 (white) compensation reagent, close and shake for 30 seconds.  
This is the pre-treated sample.  
Take 1 Reaction tube, and with the pipette, add 0,5 ml of pre-treated sample, close and return several times to mix the content (Caution: tube becomes warm!).  
With the pipette, add 0,2 ml of Nitrate-111, close, and shake the tube.  
Wait 10 minutes.

**MEASUREMENT**

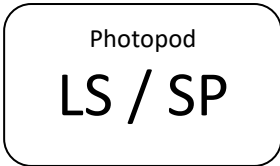
Select the analysis **072 N: 0,3-20 mg/L**  
Take the tube for the blank (tube with red label) and insert it in the photometer.  
Put the black cover on top of the tube and press the key « zero ».  
Remove the tube and put the sample tube to analyze.  
Put the black cover on top of the tube and press the key « measure ».

**NOTES**

This test determines the inorganic compounds Ammonia, Nitrate and Nitrite, as well as organic compounds like amino acid, urea, complexing agents etc. Nitrogen compounds which are hardly to oxidize, as may be found in industrial sewage, are not digested or only partially.

## I-073-Total NitrogenHR: 3-200 mg/L N

Reagents kit reference: FTI2420703  
Preparation time: ~ 80 min



### REAGENTS

Digestion tubes (empty tubes)  
Blank tube (red label)  
Reaction tubes  
Digestion Reagent  
Compensation Reagent  
Nitrate-111  
Demineralized water

### RECOMMENDED EQUIPMENT (consult us)

Automatic pipette 0.1 - 1 ml	1PA022
Pipette Tip 0,1 - 1 ml	1EU012
Automatic Pipette 1 - 5 ml	1PA023
Pipette Tip 1 - 5 ml	1EU013
24 tubes stand Ø16	1PT013
Wooden clamp	1PT007
Heating reactor	1RD010

### TEST INSTRUCTION

Turn on the heating reactor. Preheat to 100 °C.  
Take one Digestion tubes.  
With the pipette, put 0.5 ml of water to analyze and, with the pipette 4.5 ml of demineralized water in the tube.  
Add 1 level scoop of No. 8 (black) digestion reagent, close, and shake for 30 seconds.  
Put the tube in the reactor for 60 minutes at 100°C.  
Remove the tube from the thermoreactor with wooden clamp. (CAUTION: the tubes are hot!).  
Place the tube in the tube stand and allow cooling to room temperature.  
Add 1 level scoop of No. 4 (white) compensation reagent, close and shake for 30 seconds.  
This is the pre-treated sample.  
Take 1 reaction tube, and with the pipette, add 0,5 ml of pre-treated sample, close and return several times to mix the content (Caution: Tube becomes warm!).  
With the pipette, add 0.2 ml of Nitrate-111, close, and mix the tube.  
Wait 10 minutes.

### MEASUREMENT

Select the analysis **073 N: 3-200 mg/L**  
Take the tube for the blank (tube with red label) and insert it in the photometer.  
Put the black cover on top of the tube and press the key « zero ».  
Remove the tube and put the sample tube to analyze.  
Put the black cover on top of the tube and press the key « measure ».

### NOTES

This test determines the inorganic compounds Ammonia, Nitrate and Nitrite, as well as organic compounds like amino acid, urea, complexing agents etc. Nitrogen compounds

which are hardly to oxidize, as may be found in industrial sewage, are not digested or only partially.

## I-080- Benzotriazole: 1.00 - 16.0 mg/L

Reagent kit: 1MT078  
Preparation time: ~ 5.5min

Photopod

LS

### REAGENTS

Triazole Reagent 1RT018

### EQUIPMENT (consult us)

Graduated Glass Flask 125 ml	1FG000
UVLamp+ UV Protection Googles	14LU01
UV Protection Googles	FHA2113400
Glass Tube	1CR099
Plastic funnel	1EP021

### TEST INSTRUCTIONS

Caution: the lamp produces UV rays hazardous to eyes and skin.  
Wear UV protection goggles when the light is on.  
Avoid touching the surface of the quartz of the lamp. Wipe the lamp after each use.

Take a 25 ml sample of water to analyze in the graduated glass flask.  
Add 20 drops of Triazole Reagent (1RT018) and shake.  
Put the UV glasses on.  
Introduce the UV lamp in the flask and put it on for 5 minutes then turn it off.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **080 BZT: 1.00- 16.0 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

### NOTA

To check that the lamp works correctly, take a solution at 5,0 mg/l of benzotriazole and make an analysis. If the result is below 5.0 mg/l, then change the lamp.

*Please note that the refill kit's reference is 1MT307*

## I-101-Bromine: 1.00-13.5 mg/L Br<sub>2</sub>

Reagent kit: 1MT138  
Preparation time: ~ 7min

Photopod  
LS/SP

### REAGENTS

DPD 1 Tablet	1D1018P
DPD Glycine Tablet	1NP000

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

#### Total bromine test

Take a 12.5 ml sample of water to analyze in the graduated plastic tube.

**In the presence of chlorine:** Add 1 DPD Glycine tablet, crush it with the crushing rod and stir with the rod to dissolve.

Add 1 DPD 1 tablet, crush it with the crushing rod and stir with the rod to dissolve.

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Wait 5 minutes after crushing the tablet.

Proceed to the measurement

### MEASUREMENT

Select the analysis **101 Br<sub>2</sub>:1.00-13.5mg/L**

Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer

Put the black cover on top of the tube and press the key « zero »

Remove the tube and put the sample tube to analyze

Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT004.*

## I-102 - Bromine: 0.10 - 2.25 mg /L Br<sub>2</sub>

Reagent kit: 1MT138  
Preparation time: ~ 4min

Photopod  
**LS/SP**

### REAGENTS

DPD 1 Tablet	1D1018P
DPD Glycine Tablet	1NP000

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

#### Total brominetest

Take a 20 ml sample of water to analyze in the graduated plastic tube.

**In the presence of chlorine:** Add 1 DPD Glycine tablet; crush it with the crushing rod and stir with the rod to dissolve .

Add 1 DPD 1 tablet, crush it and stir with the rod to dissolve.

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Wait 2 minutes after crushing the tablet.

Proceed to the measurement

### MEASUREMENT

Select the analysis **102 Br<sub>2</sub>: 0.10 - 2.25 mg/L**

Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer

Put the black cover on top of the tube and press the key « zero »

Remove the tube and put the sample tube to analyze

Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT004.*

## I-110- Calcium: 20 - 200 mg/l CaCO<sub>3</sub>

Reagent kit: 1MT139  
Preparation time: ~ 4min

Photopod

SP

### REAGENTS

Calcicol 1 Tablet	1AP252
Calcicol 2 Tablet	1AP252
Demineralized water	1ED010

### EQUIPMENT

Graduated Plastic Tube	14TP00 x 2
Crushing Rod	1AP018
Glass Tube	1CR099
pH indicator 0 - 14	1PI110
Syringe 1 ml	1SU010
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take 1 ml sample of water to analyze using the syringe, put it in the graduated plastic tube. Fill the Tube to the 10 ml mark with Demineralized water. Put the cap and shake. Check with the pH indicator test strip that the pH is between 4 and 10 otherwise adjust it. Add 1 Calcicol 1 tablet, crush it with crushing rod and stir until dissolved ~ 30s. Add 1 Calcicol 2 tablet, crush it with crushing rod and stir until dissolved ~ 30s. Wait 2 minutes. Fill a glass tube with this preparation using the plastic funnel then cover the tube. Proceed to the measurement.

### MEASUREMENT

Select the analysis **110 Ca: 20 - 200mg/L CaCO<sub>3</sub>**  
In a graduated plastic tube, introduce a 1 ml sample of water to analyze. Fill the tube to the 10 ml mark with Demineralized water. Fill a glass tube with this preparation using the plastic funnel then cover the tube. Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**NOTA: Concentration Ca mg/L= reading x 0.4**

Interference: Mg < 200mg/L: nothing  
Iron > 10 mg/L: concentration lower  
Zinc > 5 mg/L: concentration higher

Please note that the refill kit's reference is 1MT309.

## I-111 - Calcium: 2.0 -20.0mg/ICaCO<sub>3</sub>

Reagent kit: 1MT139  
Preparation time: ~ 3min

Photopod

SP

### REAGENTS

Calcicol 1 Tablet	1AP252
Calcicol 2 Tablet	1AP252

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
pH indicator pH 0 - 14	1PI110
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Check with the pH indicator test strip that the pH is between 4 and 10 otherwise adjust it.  
Add 1 Calcicol 1 tablet, crush it with crushing rod and stir until dissolved ~ 30s  
Add 1 Calcicol 2 tablet, crush it with crushing rod and stir until dissolved ~ 30s  
Wait 2 minutes.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **111 Ca: 2.0- 20.0mg/L CaCO<sub>3</sub>**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**NOTA: Concentration Ca mg/L= reading x 0.4**

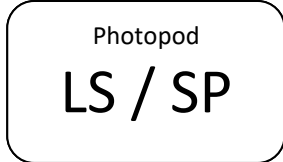
Interference: Mg < 200 mg/L: nothing  
Iron > 10 mg/L: concentration lower  
Zinc > 5 mg/L: concentration higher

Please note that the refill kit's reference is 1MT309.



## I-121 - Free chlorine and total chlorine: 0.50- 6.00 mg/L Cl<sub>2</sub>

Reagent kit: 1MT140 and 1MT192  
Preparation time: ~ 7min



### REAGENTS

DPD 1 Tablet (Free chlorine)	1D1018P
DPD 4 Tablet (total chlorine)	1D4004P

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 (consult us)

### TEST INSTRUCTIONS

#### Free chlorine test

Take a 12.5 ml sample of water to analyze in the graduated plastic tube.  
Add 1 DPD 1 tablet, crush it and shake to dissolve  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 5 minutes.  
Proceed to the measurement.

#### Total chlorine test

Take a 12.5 ml sample of water to analyze in the graduated plastic tube.  
Add 1 DPD 4 tablet, crush it and shake to dissolve  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 5 minutes.  
Proceed to the measurement.

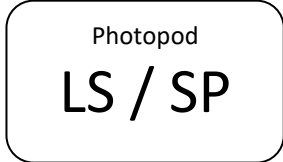
### MEASUREMENT

Select the analysis **121 Cl<sub>2</sub>:0.50- 6.00mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT116 (for free chlorine) & 1MT007 (for total chlorine).*

## I-122 -Free chlorine and total chlorine: 0.05- 1.00 mg/L

Reagent kit: 1MT140 and 1MT192  
Preparation time: ~ 4min



### REAGENTS

DPD 1 Tablet (Free chlorine)	1D1018P
DPD 4 Tablet (total chlorine)	1D4004P

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 (consult us)

### TEST INSTRUCTIONS

#### Free chlorine test

Take a 20 ml sample of water to analyze in the graduated plastic tube.  
Add 1 DPD 1 tablet, crush it and shake to dissolve  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 2 minutes.  
Proceed to the measurement.

#### Total chlorine test

Take a 20 ml sample of water to analyze in the graduated plastic tube.  
Add 1 DPD 4 tablet, crush it and shake to dissolve  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 2 minutes.  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **122 Cl<sub>2</sub>: 0.05 - 1.00 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT116 (for free chlorine) & 1MT007 (for total chlorine).*

**I-123 - Free chlorine: 0.10- 2.00 mg/L Cl<sub>2</sub>** *Method compatible with HACH DPD Free Chlorine Reagent Powder Pillows, 10-mL*

Photopod

SP

Reagent kit: 1MT113(option 1) or 1MT114 (option 2)  
Preparation time: ~ 3 min

**REAGENTS**

DPD Free Chlorine Powder Pillows, 10-mL                      14DC05

**EQUIPMENT Option 1**

Graduated Plastic Tube    14TP00  
Glass Tube    1CR099  
Plastic funnel    1EP021 (consult us)

**EQUIPMENT Option 2 for more accurate analysis**

Graduated pipette 10 mL    1PG003  
Glass Tube    1CR099  
Rubber pipette filler 10 mL    1PD006 (consult us)

**TEST INSTRUCTIONS Option 1**

Rinse the graduated plastic tube and glass tube three times with water to analyze.  
Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1DPD Free Chlorine Powder Pillow(carefully open the bag at tear line level)  
Cap the plastic tube and invert it about 20 seconds to dissolve the reagent  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Within 1 minute of reagent addition, proceed to the measurement.

**TEST INSTRUCTIONS Option 2 for more accurate analysis**

Rinse the glass tube inner part of cap and graduated pipette, three times, with water to analyze.  
Using graduated pipette, take a 10 ml sample of water to analyze in the dried glass tube.  
Add 1 DPD Free Chlorine Powder Pillow (carefully open the bag at tear line level)  
Cap the glass tube and invert it about 20 seconds to dissolve the reagent  
Within 1 minute of reagent addition, proceed to the measurement.

**MEASUREMENT**

Select the analysis    **123 Cl<sub>2</sub>\_free:0.10-2.00mg/L**  
Rinse the blank glass tube and inner part of cap, three times, with water to analyze.  
Fill the glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the glass blank tube  
Put the glass sample tube, previously prepared with reagent, to analyse.  
Put the black cover on top of the tube and press the key « measure »

## *INTERFERENCES*

Highly buffered samples or extreme pH may prevent the correct pH adjustment of the water to analyse by the reagents. Adjust to pH 6–7 with acid (sulfuric acid, 1 N) or base (sodium hydroxide, 1 N). Correct the test result for the dilution caused by the volume additions

Positive interference at all levels: bromine, chlorine dioxide, iodine, ozone, and monochloramine

Interference of oxidized manganese and oxidized chromium can be corrected as follows:

- 1) Adjust the pH of 10 mL of test water to 6–7;
- 2) Add 3 drops of Potassium Iodide 30 g/L to the sample and mix;
- 3) Wait 1 minute;
- 4) Add 3 drops of Sodium Arsenite 5 g/L and mix;
- 5) Measure the concentration of the treated sample;
- 6) Subtract this result from the result obtained by the test water without the treatment to obtain the correct chlorine concentration.

*Please note that the refill kit's reference is 1MT115*

## I-130-Chloride: 10 - 500 mg/L Cl<sup>-</sup>

Reagent kit: 1MT044  
Preparation time: ~ 5min

Photopod

LS

### REAGENTS

Chloride Reagent 1	1RC040
Chloride Reagent 2	1RC050
Demineralized water	1ED010

### EQUIPMENT

Glass Tube	1CR099
Syringe 10 ml	1SU013
Syringe 1 ml	1SU010

### TEST INSTRUCTIONS

With the 10 ml syringe, introduce 9 ml of demineralized water in a glass tube  
With a 1 ml syringe, introduce a 1 ml sample of water to analyze in the glass tube  
Close the tube and shake.  
Add 16 drops of Chloride Reagent 1  
Close the tube and shake.  
Add 16 drops of Chloride Reagent 2  
Close the tube and shake.  
Wait 3 minutes, invert the tube once every minute to homogenize.  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **130 Cl<sup>-</sup> : 10 - 500mg/L**  
With the 10 ml syringe, introduce 9 ml of demineralized water in another glass tube  
With the 1 ml syringe, introduce a 1 ml sample of water to analyze in the glass tube, put the cap, shake it and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**NOTA: Concentration in French degrees (°F) = reading x 0.14**

*Please note that the refill kit's reference is 1MT310.*

## I-131 - Chloride: 1.0 - 50.0 mg/L Cl<sup>-</sup>

Reagent kit: 1MT044  
Preparation time: ~ 4min

Photopod

LS

### REAGENTS

Chloride Reagent 1	1RC040
Chloride Reagent 2	1RC050

### EQUIPMENT

Glass Tube	1CR099
Syringe 10 ml	1SU013

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the glass tube  
Close glass tube and shake.  
Add 16 drops of Chloride Reagent 1  
Close glass tube and shake.  
Add 16 drops of Chloride Reagent 2  
Close glass tube and shake.  
Wait 3 minutes, invert the tube once every minute to homogenize.  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **131 Cl<sup>-</sup> : 1.0 -50.0 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**NOTA: Concentration in French degrees (°F) = reading x 0.14**

*Please note that the refill kit's reference is 1MT310.*

## I-132 -Chloride: 5 - 200 mg/L Cl<sup>-</sup>

Reagent kit: 1MT141  
Preparation time: ~ 5min

Photopod

SP

### REAGENTS

Acidifying CD tablet	1AP268
Chloridol tablet	1AP268
Demineralized water	1ED010

### EQUIPMENT

Graduated Plastic Tube	14TP00*2
Crushing Rod	1AP018
Glass Tube	1CR099
Syringe 1 ml	1SU010
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 1 ml sample of water to analyze using the 1ml syringe, put it in the graduated plastic tube. Fill the Tube up to the 10 ml mark with Demineralized water.

Close the tube and shake.

Add 1 acidifying CD tablet, crush it with the crushing rod and shake till it is dissolved ~ 1 min

Add 1 Chloridol tablet, wait 2 minutes, then crush it with the crushing rod and shake till it is dissolved ~ 30 s

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Proceed to the measurement

### MEASUREMENT

Select the analysis **132 Cl<sup>-</sup> : 5 - 200 mg/L**

In the graduated plastic tube introduce 1 ml sample of water to analyze

Fill the Tube to the 10 ml mark with Demineralized water.

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Put the black cover on top of the tube and press the key « zero »

Remove the tube and put the sample tube to analyze

Put the black cover on top of the tube and press the key « measure »

**NOTA: Concentration in French degrees (°F) = reading x 0.14**

*Please note that the refill kit's reference is 1MT311.*

## I-133 -Chloride: 0.50-20.0 mg/L Cl<sup>-</sup>

Reagent kit: 1MT141  
Preparation time: ~ 4min

Photopod

SP

### REAGENTS

Acidifying CD tablet	1AP268
Chloridol tablet	1AP268
Demineralized water	1ED010

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 acidifying CD tablet, crush it with the crushing rod and shake till it is dissolved ~ 1 min  
Add 1 Chloridol tablet, wait 2 minutes, then crush it with the crushing rod and shake till it is dissolved ~ 30 s  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **133 Cl<sup>-</sup> :0.50-20.0 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**NOTA: Concentration in French degrees (°F) = reading x 0.14**

*Please note that the refill kit's reference is 1MT311.*



## I-140- Chromium VI: 0.10- 4.00 mg/L Cr<sup>6</sup>

Reagent kit: 1MT180  
Preparation time: ~ 1.5min

Photopod

LS

### REAGENTS

Chromium 1 Reagent	1RC032
Chromium 2 Reagent	1RC033
Sodium Fluoride Reagent	1SF000

### EQUIPMENT

Glass Tube	1CR099
Syringe 5 ml	1SU012

### TEST INSTRUCTIONS

With the syringe, take a 5 ml sample of water to analyze in the glass tube.  
If water contains more than 1 mg/L of iron, eliminate it adding 3 drops of Sodium Fluoride  
Add 4 drops of Chromium reagent 1 and shake.  
Add 5 drops of Chromium reagent 2 and shake.  
Wait 1 minute.  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **140 Cr6:0.10 - 4.00 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**NOTA: Chromium VI in mg/l CrO<sub>4</sub><sup>2-</sup> = reading x 2.23**

*Please note that the refill kit's reference is 1MT009.*

## I-141 - Chromium VI: 0.05 - 2.00 mg/L Cr<sup>6</sup>

Reagent kit: 1MT142  
Preparation time: ~ 6min

Photopod

SP

### REAGENTS

Chromicol 1 tablet	1AP281
Chromicol 2 tablet	1AP281

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Chromicol 1 tablet, crush it with the crushing rod and shake till it is dissolved ~ 30s  
Add 1 Chromicol 2 tablet, crush it with the crushing rod and shake till it is dissolved ~ 30s  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 5 minutes.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **141 Cr6:0.05 – 2.00 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

### INTERFERENCES

Dissolved iron concentration greater than 1 mg / L will give lower results in chrome.  
To increase sensitivity then add 2 chromicol 1 tablet and 1 chromicol 2 tablet.  
This instruction may not be applied if the sample matrix contains tannin.

*Please note that the refill kit's reference is 1MT312.*

## I-150-FreeCopper: 0.05 - 5.0 mg/L Cu

Reagent kit: 1MT181  
Preparation time: ~ 3.5min

Photopod

LS

### REAGENTS

Copper 1Reagent	1RC060
Copper 2Reagent	1RC070

### EQUIPMENT

Glass Tube	1CR099
Syringe 10 ml	1SU013

### TEST INSTRUCTIONS

With the syringe, take a 10 ml sample of water to analyze and introduce in a glass tube  
Add 5 drops of Copper 1Reagent  
Close and shake  
Add 5 drops of Copper 2Reagent  
Close and shake  
Wait 3 minutes  
Proceed to the measurement

### MEASUREMENT

Select the analysis **150 Cu: 0.05- 5.00 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT313.*

**I-151-Free Copper, Total Copper and Copper chelated:  
0.20 – 5.00 mg/L Cu**

Photopod

**SP**

Reagent kit: 1MT011  
Preparation time: ~ 6min

*REAGENTS*

Copper n°1 Tablet	1AP186
Copper n°2 Tablet	1AP186

*EQUIPMENT*

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

*TEST INSTRUCTIONS*

Free Copper

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Copper n°1 tablet. Crush it with the crushing rod and shake to dissolve. ~30 s  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 5 minutes after crushing the tablet.  
Proceed to the measurement.

Total Copper

Transfer the content of the glass tube in the graduated plastic tube.  
Add 1 Copper n°2 tablet. Crush it with the crushing rod and shake to dissolve. ~15 s  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement.

Chelated Copper

**Chelated Copper = Total Copper - Free Copper**

*MEASUREMENT*

Select the analysis **151 Cu: 0.20- 5.00 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT314.*

## I-160- Cyanide: 0.02 – 0.50 mg/L CN<sup>-</sup>

Reagent kit: 1MT012  
Preparation time: ~ 11min

Photopod

LS

### REAGENTS

Cyanide n°1 Reagent	1RC005
Cyanide n°2 Reagent	1RC008
Cyanide n°3 Reagent	1RC011
Cyanidebuffer Reagent	1RC018

### EQUIPMENT

Graduated Plastic Tube	14TP00
Plastic spoon	1J0000
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyse in the graduated plastic tube.  
Add 4 drops of Cyanidebuffer Reagent and shake  
Add 4 drops of Cyanide n°1 Reagent and shake  
Wait 1 minute.  
Add 1 plastic spoon to the brim of Cyanide n°2 Reagent and shake  
Wait 2 minutes.  
Add 16 drops of Cyanide n°3 Reagent and shake  
Wait 7 minutes.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement.

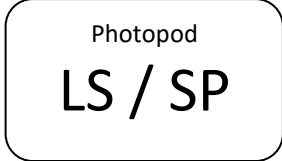
### MEASUREMENT

Select the analysis **160 CN- : 0.02 – 0.50 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT315.*

**I-174 - COD HR: 0.5 - 15 g/L O<sub>2</sub> (500 - 15000 mg/L O<sub>2</sub>)**

Reagents kit reference: 12DC02 or FTI2420722 or FTI2420712  
 Preparation time: ~ 2h30



**ATTENTION: The tubes contains sulfuric acid <90% (corrosive) and potassium dichromate <0.5% (toxic). Before starting measure, please read MSDS.**

**REAGENTS**

Reaction tubes	
Demineralized water	1ED010

**RECOMMENDED EQUIPMENT**

Automatic pipette 0.1 - 1 ml	1PA022
Pipette Tip 0,1 - 1 ml	1EU012
24 tubes stand Ø16	1PT013
Wooden clamp	1PT007
Heating reactor	1RD010

**TEST INSTRUCTIONS (consult us)**

Turn on the heating reactor. Preheat to 150 °C.  
 Take 2 tubes: one for the blank and one for the sample.  
 With the pipette, put 0.2 ml of demineralized water in the tube for the blank, close and shake gently the tube. Likewise, put 0.2 ml of water to analyze in the tube for the sample.

**Be careful, the reaction is exothermic and the tube becomes hot.**

Put the tubes in the heating reactor at 150°C during 120 minutes.  
 After 120 minutes, take the tubes with the wooden clamp (be careful, they are very hot) and shake gently. Put the tube in the tube stand and let cool to room temperature (>20 minutes).

**MEASUREMENT**

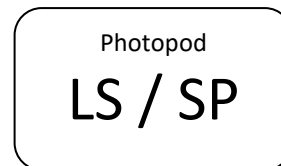
Select the analysis **174DCO: 0.5-15g/L**  
 Take the tube for the blank tube and insert it in the photometer.  
 Put the black cover on top of the tube and press the key « zero ».  
 Remove the tube and put the sample tube to analyze.  
 Put the black cover on top of the tube and press the key « measure ».

**INTERFERENCES**

Suspended solids in the tube lead to incorrect measurements. For this reason it is important to place the tubes carefully in the sample chamber. The precipitate at the bottom of the sample should be not suspended. Samples can be measured when the Chloride content does not exceed 1000 mg/l.  
 If the sample is COD < 1g/L, we advise to do measure with kit COD MR for a best precision.  
 If the sample is COD < 0,1g/L, we advise to do measure with kit COD LR for a best precision.

## I-175-COD MR: 50 - 1500 mg/L O<sub>2</sub>

Reagents kit reference: 12DC01 or FTI2420721 or FTI2420711  
Preparation time: ~ 2h30



**ATTENTION: The tubes contains sulfuric acid <90% (corrosive) and potassium dichromate <0,5% (toxic). Before starting measure, please read MSDS.**

### REAGENTS

Reaction tubes  
Demineralized water

### RECOMMENDED EQUIPMENT (consult us)

Automatic Pipette 1 - 5 ml	1PA023
Pipette Tip 1 - 5 ml	1EU013
24 tubes stand Ø16	1PT013
Wooden clamp	1PT007
Heating reactor	1RD010

### TEST INSTRUCTIONS

Turn on the heating reactor. Preheat to 150 °C.  
Take 2 tubes: one for the blank and one for the sample.  
With the pipette, put 2 ml of demineralized water in the tube for the blank, close and shake gently the tube. Likewise, put 2 ml of water to analyze in the tube for the sample.

**Be careful, the reaction is exothermic and the tube becomes hot.**

Put the tubes in the heating reactor at 150°C during 120 minutes.  
After 120 minutes, take the tubes with the wooden clamp (be careful, they are very hot) and shake gently. Put the tubes in the tube stand et let cool to room temperature (>20 minutes).

### MEASUREMENT

Select the analysis **175 DCO: 50-1500 mg/L**  
Take the tube for the blank tube and insert it in the photometer.  
Put the black cover on top of the tube and press the key « zero ».  
Remove the tube and put the sample tube to analyze.  
Put the black cover on top of the tube and press the key « measure ».

### INTERFERENCES

Suspended solids in the tube lead to incorrect measurements. For this reason it is important to place the tubes carefully in the sample chamber. The precipitate at the bottom of the sample should be not suspended. Samples can be measured when the Chloride content does not exceed 1000 mg/l.

If the sample is COD < 100 mg/L, we advise to do measure with kit COD LR for a best precision.

## I-176-COD LR: 5 - 150 mg/L O<sub>2</sub>

Reagents kit reference: 12DC00 or FTI2420720 or FTI2420710  
Preparation time: ~ 2h30

Photopod  
LS / SP

**ATTENTION: The tubes contains sulfuric acid <90% (corrosive) and potassium dichromate < 0.5% (toxic). Before starting measure, please read MSDS.**

### REAGENTS

Reaction tubes  
Demineralized water 1ED010

### RECOMMENDED EQUIPMENT

Automatic Pipette 1 - 5 ml 1PA023  
Pipette Tip 1 - 5 ml 1EU013  
24 tubes stand Ø16 1PT013  
Wooden clamp 1PT007  
Heating reactor 1RD010

### TEST INSTRUCTION

Turn on the heating reactor. Preheat to 150 °C.  
Take 2 tubes: one for the blank and one for the sample.  
With the pipette, put 2 ml of demineralized water in the tube for the blank, close and shake gently the tube. Likewise, put 2 ml of water to analyze in the tube for the sample.

**Be careful, the reaction is exothermic and the tube becomes hot.**

Put the tubes in the heating reactor at 150°C during 120 minutes.  
After 120 minutes, remove the tubes with the wooden clamp (be careful, they are very hot) and shake gently. Put the tubes in the tube stand and allow to cool to room temperature (>20 minutes).

### MEASUREMENT

Select the analysis **176 DCO: 5-150 mg/L**  
**Beware;** if Photopod is used with Odeon for this method, sample tube has to be put in the device before blank tube.  
Insert **the sample tube** in the photometer, put the black cover and press the key « zero ».  
Remove the tube and put **the blank tube**  
Put the black cover on top of the tube and press the key « measure ».

If Photopod is used with Spectralab, put the blank tube first, then the sample tube.

### INTERFERENCE

Suspended solids in the tube lead to incorrect measurements. For this reason it is important to place the tubes carefully in the sample chamber. The precipitate at the bottom of the sample should be not suspended. Samples can be measured when the Chloride content does not exceed 1000 mg/l.



## I-180 - DEHA: 0.02 - 1.00 mg/L

Reagent kit: 1MT182

Preparation time: ~ 11.5min

Photopod

LS

### REAGENTS

DEHA n°1 Reagent	1RD012
DEHA n°2 Reagent	1RD013

### EQUIPMENT

Graduated Plastic Tube	14TP00
Glass Tube	1CR099
Spoon	1J0000
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 spoonfull of DEHA n°1 reagent and shake strongly ~30 s  
Add 5 drops of DEHA n°2 Reagent, and shake  
Wait 10 minutes, inverting the tube every minute to homogenize.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **180 DEHA: 0.02 – 1.00 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*NOTA-* Avoid exposure to sunlight.  
Make the measurement at a temperature between 22°C and 28°C.

**INTERFERENCES**

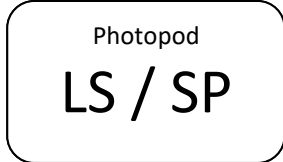
Reagents react with iron. Presence of Iron will give overestimated results

<b>substance</b>	<b>concentration</b>	<b>substance</b>	<b>concentration</b>
Borate	500 mg/l	Nickel	0,8 mg/l
Cobalt	0,025 mg/l	Phosphate	10 mg/l
Copper	8,0 mg/l	Phosphonates	10 mg/l
Hardness	1000 mg/l	Sulfate	1000 mg/l
Lignosulfonates	0,05 mg/l	Zinc	50 mg/l
Manganese	0,8 mg/l		
Molybdene	80 mg/l		

*Please note that the refill kit's reference is 1MT112.*

## I-191 - Chlorine Dioxide: 2.4-28.5mg/L ClO<sub>2</sub>

Reagent kit: 1MT177  
Preparation time: ~ 7min



### REAGENTS

DPD 1 Tablet	1D1018P
Glycine Tablet	1NP000

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 12.5 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Glycine tablet and shake to obtain total dissolution ~ 1min  
Add 1 DPD 1 tablet and shake to obtain total dissolution ~ 1min  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement 5 min after crushing the DPD 1 tablet.

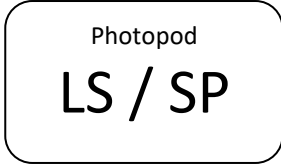
### MEASUREMENT

Select the analysis **191 ClO<sub>2</sub>:2.40-28.5 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT069.*

## I-192 - Chlorine Dioxide: 0.20 - 4.75 mg/L ClO<sub>2</sub>

Reagent kit: 1MT177  
Preparation time: ~ 4min



### REAGENTS

DPD 1 Tablet	1D1018P
Glycine Tablet	1NP000

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 20 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Glycine tablet and shake to obtain total dissolution ~ 1 min  
Add 1 DPD 1 tablet and shake to obtain total dissolution ~ 1 min  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement 2 min after crushing the DPD 1 tablet.

### MEASUREMENT

Select the analysis **192 ClO<sub>2</sub>: 0.20 -4.75 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT069.*

## I-200-Total Hardness: 5.0 -50.0°F

Reagent kit: 1MT143  
Preparation time: ~ 5min

Photopod  
**LS/SP**

### REAGENTS

Hardicol n°1Tablet	1AP254
Hardicoln°2Tablet	1AP254
Demineralized water	1ED010

### EQUIPMENT

Graduated Plastic Tube	14TP00* 2
Crushing Rod	1AP018
Glass Tube	1CR099
Syringe 5 ml	1SU012
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Withthesyringe, take 4 ml of water to analyze, introduce it in the graduated plastic tubeandcomplete with demineralized water up to 10 ml

Close the tubeandshake.

Add 1 Hardicol n°1 tablet, crush it with the crushing rod and shake to dissolve~ 1min

Add 1 Hardicol n°2 tablet, crush it with the crushing rod and shake to dissolve~ 30s

Ensure that the tablet are well dissolved

Wait 2 minutes.

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Proceed to the measurement

### MEASUREMENT

Select the analysis **200 TH: 5.0-50.0 °F**

Withthesyringe, take 4 ml of water to analyze, introduce it in the graduated plastic tube and complete with demineralized water up to 10 ml

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Put the black cover on top of the tube and press the key « zero »

Remove the tube and put the sample tube to analyze

Put the black cover on top of the tube and press the key « measure »

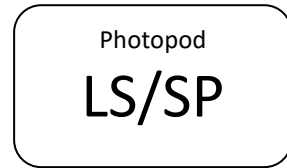
*NOTA* - For water containing Iron in concentrations higher than 10 mg/l, results will be underestimated.

The pH of the water should be between 4 and 10.

*Please note that the refill kit's reference is 1MT047.*

## I-201- Total Hardness: 2.0 -20.0°F

Reagent kit: 1MT143  
Preparation time: ~ 4min



### REAGENTS

Hardicol n°1Tablet	1AP254
Hardicol n°2Tablet	1AP254

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Hardicol n°1 tablet, crush it with the crushing rod and shake to dissolve~ 1 min  
Add 1 Hardicol n°2 tablet, crush it with the crushing rod and shake to dissolve~ 30 s  
Ensure that the tablet are well dissolved  
Wait 2 minutes.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **201 TH: 2.0- 20.0 °F**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**NOTA** - For water containing Iron in concentrations higher than 10 mg/l, results will be underestimated.  
The pH of the water should be between 4 and 10.

*Please note that the refill kit's reference is 1MT047.*

## I-210-Iron: 0.05 - 5.00 mg/L Fe<sup>2+</sup> Fe<sup>3+</sup>

Reagent kit: 1MT144  
Preparation time: ~ 3min

Photopod

LS

### REAGENTS

FerrordisReagent	14F600
Hydrochloric Acid ½ (optional)	1AC000
Sodium Hydroxide 1N (optional)	1SH055

### EQUIPMENT

pH indicator test strips 0-14	1PI110
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Check with the pH indicator test strip that the pH of the water to analyze is between 3 and 9 (T° ideally between 15 and 25°C), if not, adjust with Hydrochloric Acid or Sodium Hydroxide.  
Take a 10 ml sample of water to analyze in a glass tube  
Add 6 drops of Ferrordis reagent, shake.  
Wait 2 minutes.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **210 Fe: 0.05- 5.00mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT317.*

## I-211 - Iron: 0.2– 20.0 mg/L Fe<sup>2+</sup> Fe<sup>3+</sup>

Reagent kit: 1MT145  
Preparation time: ~ 4min

Photopod

SP

### REAGENTS

Iron 1 HR Tablet	1AP156
Chlorhydric Acid ½ (optional)	1AC000
Sodium Hydroxide 1N (optional)	1SH055

### EQUIPMENT

pH indicator test strips 0-14	1PI110
Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Check with the pH indicator test strip that the pH of the water to analyze is between 3 and 9 (T° ideally between 15 and 25°C), if not, adjust with Chlorhydric Acid or Sodium Hydroxide.  
Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Iron 1HRtablet; crush it with the crushing rod.  
Close the tube and shake strongly to dissolve ~ 3 min  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 1 min  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **211 Fe: 0.2-20.0 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT318.*



## I-212 - Iron: 0.05 - 5.00 mg/L Fe<sup>2+</sup> Fe<sup>3+</sup>

Reagent kit: 1MT146  
Preparation time: ~ 7min

Photopod

SP

### REAGENTS

Iron MR 1 Tablet	1AP292
Iron MR 2 Tablet	1AP292

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Iron MR1 tablet, crush it with the crushing rod and shake to dissolve ~ 30 s  
Add 1 Iron MR2 tablet, crush it with the crushing rod and shake to dissolve ~ 1 min  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 5 min  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **212 Fe: 0.05 -5.00 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT319*

## I-213- Iron: 0.1-10.0 mg/L Fe<sup>2+</sup> Fe<sup>3+</sup>

Reagent kit: 1MT194

Preparation time: ~ 13 min

Photopod

LS

### REAGENTS

Iron Reagent 1	1RF005
Iron Reagent 2	1RF006
Iron Reagent 3	1RF007

### EQUIPMENT

Graduated Plastic Tube	14TP00
Glass Tube	1CR099
Plastic spoon	1J0000
Plastic funnel	1EP021 ( <i>consult us</i> )
pH indicator paper 0-14	1PI110 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 20 ml sample of water to analyze in the graduated plastic tube.  
Check with the pH indicator test strip that the pH of the water to analyze is between 3 and 9.  
Add 10 drops of Iron reagent 1 and shake.  
Add 1 spoonful of Iron reagent 2 and shake to dissolve.  
Add 10 drops of Iron reagent 3 and shake.  
Wait 10 minutes.  
Fill a glass tube with this preparation by using the plastic funnel, and then cover the tube.  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **213 Fe: 0.1- 10.0 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*NOTA* - To measure Iron II only, proceed the same way as Total Iron measurement but without adding Iron Reagent 2.

*Please note that the refill kit's reference is 1MT359*

## I-220-Fluoride: 0.10- 2.00 mg/L F<sup>-</sup>

Reagent kit: 1MT110  
Preparation time: ~ 5.5min



### REAGENTS

Fluoride test tubes 14RF06

### EQUIPMENT

Syringe 2 ml 1SU001  
Glass Tube 1CR099

### Option for more accurate analysis

AutomaticPipette 1 - 5 ml 1PA023  
+Pipette Tips 1 - 5 ml 1EU003  
Or  
Graduated Pipette2 ml 1PG001  
+Manual titrator 1T0007

### TEST INSTRUCTIONS

Take a 2 ml sample of water to analyze and insert it in a Fluoride test tube, cover the tube and invert it 3 times to homogenize.  
Wait 5 minutes.  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **220 F<sup>-</sup>:0.10- 2.00mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer.  
Put the black cover on top of the tube and press the key « zero ».  
Remove the tube and put the sample tube to analyze.  
Put the black cover on top of the tube and press the key « measure ».

*NOTA* -Aluminum, calcium and iron disturb the reaction and lead to underestimated results.  
Nitrates interfere when superior to 100 mg/l.

## I-221 - Fluoride: 0.20- 2.00 mg/L F<sup>-</sup>

Reagent kit: 1MT147  
Preparation time: ~ 7min

Photopod

SP

### REAGENTS

Fluoride 1 Tablet	1AP179
Fluoride 2 Tablet	1AP179

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Fluoride 1 tablet, crush it with the crushing rod and stir with the rod to dissolve ~ 30 s  
**Don't shake the plastic tube**  
Add 1 Fluoride 2 tablet, crush it with the crushing rod and stir with the rod to dissolve ~ 90 s  
**Don't shake the plastic tube**  
Wait 5 min  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement.

### MEASUREMENT

Select the analysis **221 F<sup>-</sup>: 0,20- 2.00 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT320.*

## I-230- Hydrazine: 0.10-1.00 mg/L N<sub>2</sub>H<sub>4</sub>

Reagent kit: 1MT019  
Preparation time: ~ 3min

Photopod

LS

### REAGENTS

DAB Indicator 11D001

### EQUIPMENT

Graduated Plastic Tube 14TP00  
Glass Tube 1CR099  
Plastic funnel 1EP021 (*consult us*)

### TEST INSTRUCTIONS

Take a 5 ml sample of water to analyze in the graduated plastic tube.  
Add DAB indicator to 10 ml and shake  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 2 minutes.  
Proceed to the measurement

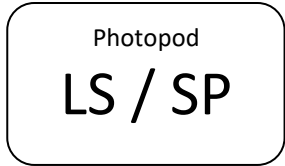
### MEASUREMENT

Select the analysis **230 N<sub>2</sub>H<sub>4</sub>: 0.10 – 1.00mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT323.*

## I-240 -Magnesium: 5.0 - 50.0 mg/L Mg

Reagent kit: 1MT161  
Preparation time: ~ 5min



### REAGENTS

MagnecolTablet	1AP193
Demineralized water	1ED010

### EQUIPMENT

Graduated Plastic Tube	14TP00*2
Crushing Rod	1AP018
Glass Tube	1CR099
Syringe 1 ml	1SU010
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

With the syringe, take a 1 ml sample of water to analyze, introduce it in the graduated tube then complete up to 10 ml with demineralized water.

Close and shake

Add 1 Magnecoltablet; crush it with the crushing rod and shake to dissolve ~ 1min

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Wait 3 min

Proceed to the measurement

### MEASUREMENT

Select the analysis **240 Mg: 5.00- 50.0mg/L**

In the graduated plastic tube introduce 1 ml sample of water to analyze

Fill the Tube to the 10 ml mark with Demineralized water.

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Put the black cover on top of the tube and press the key « zero »

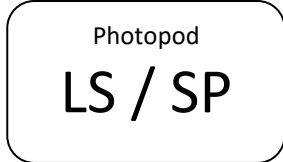
Remove the tube and put the sample tube to analyze

Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT325.*

## I-241 - Magnesium: 0.50- 5.00 mg/L Mg

Reagent kit: 1MT161  
Preparation time: ~ 4 min



### REAGENTS

MagnecolTablet 1AP193

### EQUIPMENT

Graduated Plastic Tube 14TP00  
Crushing Rod 1AP018  
Glass Tube 1CR099  
Plastic funnel 1EP021 (*consult us*)

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Magnecol tablet, crush it with the crushing rod and shake to dissolve ~ 1 min  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 3 min  
Proceed to the measurement

### MEASUREMENT

Select the analysis **241 Mg:0.05-5.00mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure ».

*Please note that the refill kit's reference is 1MT325.*

## I-250 - Manganese: 0.20- 5.00 mg/L Mn

Reagent kit: 1MT050  
Preparation time: ~ 6min

Photopod

LS

### REAGENTS

Manganese 1 Reagent	1RM007
Manganese 2 Reagent	1RM008
Manganese 3 Reagent	1RM009

### EQUIPMENT

Glass Tube	1CR099
Syringe 10 ml	1SU013

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the glass tube  
Add 8 drops of Manganese 1 Reagent  
Close and shake.  
Add 8 drops of Manganese 2 Reagent  
Close and shake.  
Wait 2 minutes.  
Add 8 drops of Manganese 3 Reagent  
Close and shake.  
Wait 5 minutes.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **250 Mn: 0.20 – 5.00mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

### INTERFERENCES

Concentrations in  $\text{Ca}^{2+}$  and  $\text{Mg}^{2+}$  higher than 300 mg/l lead to over-estimated results.  
In the presence of  $\text{Ca}^{2+}$ , concentration in phosphates higher than 5 mg/l lead to underestimated results.  
pH of the sample should be between 3 and 10. Temperature of the sample should be between 15 and 25°C.

*Please note that the refill kit's reference is 1MT326.*



## I-251 - Manganese: 0.10- 8.00 mg/L Mn

Reagent kit: 1MT162  
Preparation time: ~ 6min

Photopod

SP

### REAGENTS

ManganeseHR 1 Tablet	1AP174
ManganeseHR 2 Tablet	1AP174

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Manganese HR 1 tablet, crush it with the crushing rod and shake to dissolve ~ 45s  
Add 1 ManganeseHR 2 tablet, crush it with the crushing rod and shake to dissolve ~ 45 s  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 5 minutes  
Proceed to the measurement

### MEASUREMENT

Select the analysis **251 Mn: 0.10- 8.00mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure ».

*Please note that the refill kit's reference is 1MT327.*

## I-270 - Molybdates: 0.5 - 20.0 mg/L MoO<sub>4</sub>-Mo

Reagent kit: 1MT183  
Preparation time: ~ 1min

Photopod

LS

### REAGENTS

Molybdate Reagent compensator 1RM010  
Molybdate reagent 1RM016

### EQUIPMENT

Glass Tube 1CR099  
Syringe 10 ml 1SU007  
Plastic funnel 1EP021 (*consult us*)

### TEST INSTRUCTIONS

With syringe, take a 10 ml sample of water to analyze in the glass tube  
Add 5 drops of Molybdate Reagent compensator  
Close and shake  
Add 5 drops of Molybdate Reagent.  
Close and shake  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 1 minute.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **270 MoO<sub>4</sub>-Mo: 0.5 - 20.0 mg/L** (*Result in mg/l Mo*)  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**Concentration asMoO<sub>4</sub> mg/l = result x 1.66**

**Concentration asNa<sub>2</sub>MoO<sub>4</sub> mg/l = result x 2.15**

*Please note that the refill kit's reference is 1MT329.*

## I-271 - Molybdates: 3.0 - 60.0 mg/L MoO<sub>4</sub>-Mo

Reagent kit: 1MT024  
Preparation time: ~ 2min

Photopod

SP

### REAGENTS

Molybdate n°1 Tablet	1AP175
Molybdate n°2 Tablet	1AP175

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 molybdate n°1 tablet, crush it with the crushing rod and shake to dissolve ~ 1min  
Add 1 molybdate n°2 tablet, crush it with the crushing rod and shake to dissolve ~ 1min  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **271 MoO<sub>4</sub>-Mo: 3.0- 60.0 mg/L** (*Result in mg/l of Mo*)  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**Concentration asMoO<sub>4</sub> mg/l = result x 1,66**

**Concentration asNa<sub>2</sub>MoO<sub>4</sub> mg/l = result x 2,15**

*Please note that the refill kit's reference is 1MT330.*

## I-272 - Molybdates: 20 - 200 mg/L MoO<sub>4</sub>-Mo

Reagent kit: 1MT183  
Preparation time: ~ 1.5 min

Photopod

LS

### REAGENTS

Molybdate Reagent compensator 1RM010  
Molybdate reagent 1RM016

### EQUIPMENT

Glass Tube 1CR099  
Syringe 10 ml 1SU007  
Plastic funnel 1EP021 (*consult us*)

### TEST INSTRUCTIONS

With the syringe, take a 10 ml sample of water to analyze in the glass tube  
Add 5 drops of Molybdate Reagent compensator  
Close and shake  
Add 5 drops of Molybdate Reagent.  
Close and shake  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 1 minute.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **272 MoO<sub>4</sub>-Mo: 20 - 200 mg/L** (*Result in mg/l of Mo*)  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**Concentration asMoO<sub>4</sub> mg/l = result x 1,66**

**Concentration asNa<sub>2</sub>MoO<sub>4</sub> mg/l = result x 2,15**

*Please note that the refill kit's reference is 1MT329.*

## I-280-Nickel: 0.10-5.00 mg/L Ni

Reagent kit: 1MT164  
Preparation time: ~ 4min

Photopod

LS

### REAGENTS

Nickel 1 Reagent	1RN011
Nickel 2 Reagent	1RN012

### EQUIPMENT

Graduated Plastic Tube	14TP00
Plastic Spoon	1J0000
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 spoonfull to the brim of of Nickel 1 Reagent and shake  
Add 10 drops of Nickel 2 Reagent, and shake (color changes to orange).  
Wait 3 minutes.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **280 Ni: 0.10 – 5.0mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

NOTA - Interferences happen when:

Mn <sup>2+</sup>	>	1mg/l
Co <sup>2+</sup> Cu <sup>2+</sup> Fe <sup>3+</sup>	>	5mg/l
Cr <sup>3+</sup> Zn <sup>2+</sup>	>	10 mg/l

Please note that the refill kit's reference is 1MT331.

## I-281 -Nickel: 0.50- 10 mg/L Ni

Reagent kit: 1MT079  
Preparation time: ~3 min

Photopod

SP

### REAGENTS

Nickel test 1 tablet	1AP284
NickeltestPR POWDER	1AP284
Nickeltest 2 tablet	1AP284

### EQUIPMENT

Graduated Plastic Tube	14TP00
Plastic spoon	1J0000
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Nickeltest 1 tablet, crush it with the crushing rod and shake to dissolve. ~30 s  
**Only if the sample contains iron:** Add 1 spoonful of Nickeltest PR POWDER and shake  
Add 1 Nickeltest 2 tablet, crush it with the crushing rod and shake to dissolve ~30 s  
A bit of foam appears. Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 2 minutes.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **281 Ni: 0.50- 10mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

NOTA - Interferences happen when:

Mn <sup>2+</sup>	>	1mg/l
Co <sup>2+</sup> Cu <sup>2+</sup> Fe <sup>3+</sup>	>	5mg/l
Cr <sup>3+</sup> Zn <sup>2+</sup>	>	10 mg/l

Please note that the refill kit's reference is 1MT332.

## I-300 - Nitrates : 0.10 - 1.00 mg/L NO<sub>3</sub><sup>-</sup>-N

Photopod

SP

Reagent kit: 1MT101

Preparation time: ~ 17min

### REAGENTS

Nitrate Reagents	1AP163
Nitratetest Powder	1AP163
Nitratetest Tablets (contained in a white flask)	1AP163
Nitricol Tablets	1AP163

### EQUIPMENT

Graduated Plastic Tube	14TP00 x 2
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 20 ml sample of water to analyze in the graduated plastic tube.

Add 1 spoonful of Nitratetest Powder and 1 Nitratetest tablet (from the white flask). Don't crush the tablet. Cover the tube and shake for 1 minute.

Wait 1 minute, and then invert the tube 4 times to allow the flocculation. Wait until the liquid is clear (~2 minutes).

Remove the cap and wipe around the top of the tube with a clean tissue.

Pour carefully 10 ml of the clear solution in another graduated plastic tube.

Add 1 Nitricol tablet, crush it with the crushing rod and shake to dissolve.

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Wait 10 minutes (after crushing the Nitricol tablet)

Proceed to the measurement.

### MEASUREMENT

Select the analysis **300 NO<sub>3</sub>-N: 0.10-1.00 mg/L** (*Result in mg/L of N*)

Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer.

Put the black cover on top of the tube and press the key « zero ».

Remove the tube and put the sample tube to analyze.

Put the black cover on top of the tube and press the key « measure ».

$$\text{Concentration as mg/L NO}_3^- = \text{result} \times 4.4$$

### Nitrite Correction

The reagent also reacts with Nitrite. Most of the time, concentration in Nitrite is low compared to concentration in nitrate. But concentration in nitrite can be measured (in mg/l) and deduced from the concentration measured with this method.

*Please note that the refill kit's reference is 1MT333.*

**I-301 - Nitrates : 0.06 – 2.30 mg/L NO<sub>3</sub><sup>-</sup>N** *Method compatible with sea water*



Reagent kit: 1MT184  
Preparation time: ~ 10 min

**REAGENTS**

Nitrates 1 Reagent	1RN015
Powder nitrate Reagent	1PN010

**EQUIPMENT**

Graduated Plastic Tube	14TP00 x 2
Crushing Rod	1AP018
Glass Tube	1CR099
Syringe 10ml	1SU013
Filter holder	14PF09
Filter paper	14PF05
Clamp	1PM010( <i>consult us</i> )
Plastic spoon	1J0000

**TEST INSTRUCTIONS**

Take the filter holder, unscrew it and introduce it with the clamp, screw the bracket.  
In the first graduated plastic tube, take a 10 ml sample of water to analyze  
Add 1 spoonfull of Powder nitrate Reagent  
Close and shake 1 minute  
With the syringe 10ml take totaly sample (water+zinc)  
Fit the 10 ml syringe containing the sample on the filter holder and gently squeeze out a few drops of (=rinsing the filter).  
Filter the sample and introduce it in the second plastic tube graduated to 5 ml graduation.  
Add nitrate 1 Reagent to 10 ml and shake.  
Wait 3 minutes.  
Proceed to the measurement  
Unscrew the filter holder, remove the soiled filter and clean all the water.

**MEASUREMENT**

Select the analysis **301 NO<sub>3</sub>-N: 0.06 - 2.30 mg/L** (*Result in mg/L of N*)  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**Concentration as mg/L NO<sub>3</sub><sup>-</sup> = result x 4.4**

**Nitrite correction**

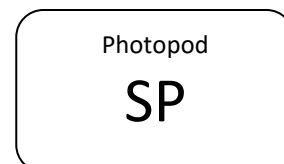
The method optionally reacts with the nitrite present in the sample. Nitrite content is low compared to that of nitrate in most of the water, but can determine the concentration (mg / l N) of nitrite and then deduct the value of the content (in mg / l N) nitrate.

*Please note that the refill kit's reference is 1MT350.*



**I-302 - Nitrates: 1.0 - 22.5 mg/L NO<sub>3</sub>--N**  
**I-304 - Nitrates: 4.5 - 45.0 mg/L NO<sub>3</sub><sup>-</sup>N**

Reagent kit: 1MT101  
 Preparation time: ~ 17 min



*REAGENTS*

Nitrate Reagents	1AP163
Nitratest Powder	1AP163
Nitratest Tablets (contained in a white flask)	1AP163
Nitricol Tablets	1AP163
Demineralized water	1ED010

*EQUIPMENT*

Graduated Plastic Tube	14TP00 x 3
Crushing Rod	1AP018
Syringe 1 ml	1SU010
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

*TEST INSTRUCTIONS*

With the syringe take a 1 ml sample of water to analyze, introduce it in the graduated plastic tube then complete up to 20 ml with Demineralized water  
 Close and shake  
 Add 1 spoonful of Nitratest Powder and 1 Nitratest tablet (from the white flask). Don't crush the tablet. Cover the tube and shake for 1 minute.  
 Wait 1 minute, and then invert the tube 4 times to allow the flocculation. Wait until the liquid is clear (~2 minutes).  
 Remove the cap and wipe around the top of the tube with a clean tissue.  
 Pour carefully 10 ml of the clear solution in another graduated plastic tube.  
 Add 1 Nitricol tablet, crush it with the crushing rod and shake to dissolve.  
 Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
 Wait 10 minutes (after crushing the Nitricol tablet)  
 Proceed to the measurement.

*MEASUREMENT*

Select the analysis    **302 NO<sub>3</sub>: 1.0 – 22.5 mg/L**                      (*Result in mg/L of N*)  
                                   **304 NO<sub>3</sub>-N: 4.5 – 45.0 mg/L**                      (*Result in mg/L of N*)

In the graduated plastic tube introduce 1 ml sample of water to analyze  
 Fill the Tube to the 20 ml mark with Demineralized water.  
 Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
 Put the black cover on top of the tube and press the key « zero »  
 Remove the tube and put the sample tube to analyze  
 Put the black cover on top of the tube and press the key « measure »

**Concentration as mg/L NO<sub>3</sub><sup>-</sup> = result x 4.4**

#### Nitrite correction

The method optionally reacts with the nitrite present in the sample. Nitrite content is low compared to that of nitrate in most of the water, but can determine the concentration (mg / l N) of nitrite and then deduct the value of the content (in mg / l N) nitrate.

*Please note that the refill kit's reference is 1MT333.*

**I-303 - Nitrates: 0.6 - 23.0 mg/L NO<sub>3</sub><sup>-</sup>N** *Method compatible with sea water*

Photopod  
**LS/SP**

Reagent kit: 1MT184  
Preparation time: ~ 10 min

### REAGENTS

Nitrates 1 Reagent	1RN015
Powder nitrate Reagent	1PN010
Demineralized water	1ED020

### EQUIPMENT

Graduated Plastic Tube	14TP00 x 2
Crushing Rod	1AP018
Glass Tube	1CR099
Syringe 10ml	1SU013
Syringe 1 ml	1SU010
Filter holder	14PF09
Filter Paper	14PF05
Clamp	1PM010( <i>consult us</i> )
Plastic spoon	1J000

### TEST INSTRUCTIONS

Take the filter holder, unscrew it and introduce the filter paper, screw the bracket.  
In the first graduated plastic tube take, with the syringe introduce a 1 ml sample of water to analyse and complete with Demineralized water up to 10 ml  
Shake  
Add 1 spoonfull of Powder nitrate Reagent  
Close and shake 1 minute  
With the syringe 10ml take totally the sample (water+zinc)  
Fit the 10 ml syringe containing the sample on the filter holder and gently squeeze out a few drops of (=rinsing the filter).  
Filter the sample and introduce it in the second plastic tube up to 5 ml graduation.  
Add nitrate 1 Reagent up to 10 ml and shake.  
Wait 3 minutes.  
Proceed to the measurement  
Unscrew the filter holder, remove the soiled filter and clean all the water.

### MEASUREMENT

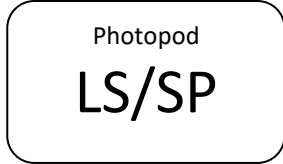
Select the analysis **303 NO<sub>3</sub>-N: 0.6 - 23.0 mg/L** (*Result in mg/L of N*)  
In the graduated plastic tube introduce 1 ml sample of water to analyze  
Fill the Tube to the 10 ml mark with Demineralized water.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

#### Nitrite correction

The method optionally reacts with the nitrite present in the sample. Nitrite content is low compared to that of nitrate in most of the water, but can determine the concentration (mg / l N) of nitrite and then deduct the value of the content (in mg / l N) nitrate.

*Please note that the refill kit's reference is 1MT350.*

**I-305 - Nitrates: 0.06 – 1.80 mg/L NO<sub>3</sub><sup>-</sup>N** *Method compatible with sea water*



Reagent kit: 1MT184  
Preparation time: ~ 10 min

**REAGENTS**

Nitrates 1 Reagent	1RN015
Powder nitrate Reagent	1PN010

**EQUIPMENT**

Graduated Plastic Tube	14TP00 x 2
Crushing Rod	1AP018
Glass Tube	1CR099
Syringe 10ml	1SU013
Filter holder	14PF09
Filter paper	14PF05
Clamp	1PM010( <i>consult us</i> )
Plastic spoon	1J0000

**TEST INSTRUCTIONS**

Take the filter holder, unscrew it and introduce it with the clamp, screw the bracket.  
In the first graduated plastic tube, take a 10 ml sample of water to analyze  
Add 1 spoonfull of Powder nitrate Reagent  
Close and shake 1 minute  
With the syringe 10ml take totally sample (water+zinc)  
Fit the 10 ml syringe containing the sample on the filter holder and gently squeeze out a few drops of (=rinsing the filter).  
Filter the sample and introduce it in the second plastic tube graduated to 5 ml graduation.  
Add nitrate 1 Reagent to 10 ml and shake.  
Wait 3 minutes.  
Proceed to the measurement  
Unscrew the filter holder, remove the soiled filter and clean all the water.

**MEASUREMENT**

Select the analysis **305 NO<sub>3</sub>-N: 0.06 - 1.80 mg/L** (*Result in mg/L of N*)  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**Concentration as mg/L NO<sub>3</sub><sup>-</sup> = result x 4.4**

**Nitrite correction**

The method optionally reacts with the nitrite present in the sample. Nitrite content is low compared to that of nitrate in most of the water, but can determine the concentration (mg / l N) of nitrite and then deduct the value of the content (in mg / l N) nitrate.

*Please note that the refill kit's reference is 1MT350.*

## I-306 - Nitrates: 0.1 - 20 mg/L NO<sub>3</sub><sup>-</sup>-N

Reagents kit reference: FTI2420702  
Preparation time: ~ 5min

Photopod  
LS/SP

### REAGENTS

Reaction tube  
Blank Tube (red label)  
Nitrate-111

### RECOMMENDED EQUIPMENT (consult us)

Automatic pipette 0,1 - 1 ml	1PA022
Pipette Tip 0,1 - 1 ml	1EU012
24 tubes stand Ø16	1PT013

### TEST INSTRUCTIONS

With the pipette, put 0.5 ml of water to analyze in the reaction tube, close and gently shake.  
**Be careful, the reaction is exothermic and the tube becomes hot.**  
Add 0.2 ml of nitrate 111, close and return several times the tube.  
Wait 5 minutes.

### MEASUREMENT

Select the analysis **306 NO<sub>3</sub>-N: 0,02 - 20 mg/L**  
Take the tube for the blank (tube with red label) and insert it in the photometer.  
Put the black cover on top of the tube and press the key « zero ».  
Remove the tube and put the sample tube to analyze.  
Put the black cover on top of the tube and press the key « measure ».

**Concentration as mg/L NO<sub>3</sub><sup>-</sup> = result x 4.4**

### INTERFERENCES

Nitrite concentrations greater than 2 mg/L NO<sub>2</sub><sup>-</sup> lead to higher test results. Great quantities of COD lead to higher test results.

**I-320 - Nitrites: 0.01 - 0.60 mg/L NO<sub>2</sub>-N** *Method compatible with sea water*



Reagent kit: 1MT027  
Preparation time: ~ 6min

**REAGENTS**

Concentrated Ammoniac	1AC030
Z Indicator	1IZ000

**EQUIPMENT**

Glass Tube	1CR099
Syringe 10 ml	1SU013

**TEST INSTRUCTIONS**

Take a 10 ml sample of water to analyze in the glass tube  
Add 7 drops of Z Indicator  
Close the tube and shake.  
Wait 5 minutes.  
Add 7 drops of Concentrated Ammoniac  
Close the tube and shake: a yellow color appears instantaneously  
Proceed to the measurement

**MEASUREMENT**

Select the analysis **320 NO<sub>2</sub> -N: 0.01 – 0.60 mg/L** (Result in mg/L of N)  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

$$\text{Concentration as mg/L NO}_2 = \text{result} \times 3.3$$

*Please note that the refill kit's reference is 1MT334.*





## I-322- Nitrites: 0.4- 41 mg/L NO<sub>2</sub> -N

Reagent kit: 1MT166  
Preparation time: ~ 3min

Photopod

SP

### REAGENTS

Nitriphot 1 Tablet	1AP260
Nitriphot 2 Tablet	1AP260

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Nitriphot 1 tablet crush it with the crushing rod.  
Close the tube and shake strongly to dissolve ~ 1-2 min  
Add 1 Nitriphot 2 tablet, crush it with the crushing rod and shake to dissolve ~ 15s  
Wait 1 min  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

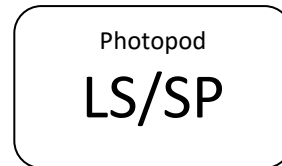
Select the analysis **322 NO<sub>2</sub> -N: 0.4 - 41 mg/L** (*Result in mg/L of N*)  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**Concentration as mg/L NO<sub>2</sub> = result x 3.3**

*Please note that the refill kit's reference is 1MT336.*

## I-323 - Nitrites: 4- 410 mg/L N

Reagent kit: 1MT166  
Preparation time: ~ 3min



### REAGENTS

Nitriphot 1 Tablet	1AP260
Nitriphot 2 Tablet	1AP260
Demineralized water	1ED010

### EQUIPMENT

Graduated Plastic Tube	14TP00 x2
Crushing Rod	1AP018
Glass Tube	1CR099
Syringe 1 ml	1SU010
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

With the syringe, take a 1 ml sample of water to analyze, introduce it in the graduated tube then complete up to 10 ml with demineralized water.

Close and shake

Add 1 Nitriphot 1 tablet; crush it with the crushing rod.

Close the tube and shake strongly to dissolve ~ 1-2 min

Add 1 Nitriphot 2 tablet; crush it with the crushing rod and shake to dissolve ~ 15s

Wait 1 min

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Proceed to the measurement

### MEASUREMENT

Select the analysis **323 NO<sub>2</sub>-N: 4 - 410 mg/L** (*Result in mg/L of N*)

In the graduated plastic tube introduce 1 ml sample of water to analyze

Fill the Tube to the 10 ml mark with Demineralized water.

Fill a glass tube with this preparation using the plastic funnel then cover the tube.

Put the black cover on top of the tube and press the key « zero »

Remove the tube and put the sample tube to analyze

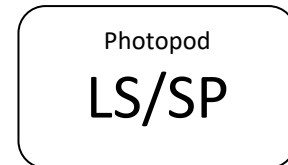
Put the black cover on top of the tube and press the key « measure »

**Concentration as mg/L NO<sub>2</sub> = result x 3.3**

*Please note that the refill kit's reference is 1MT336.*

## I-324 - Nitrite LR: 0.01- 1 mg/L NO<sub>2</sub><sup>-</sup>-N

Reagents kit reference: FTI2419018  
Preparation time: ~ 12min



### REAGENTS

Reaction tubes  
Blank Tube (red label)  
Nitrite-101

### RECOMMENDED EQUIPMENT (consult us)

Automatic Pipette 1 - 5 ml	1PA023
Pipette Tip 1 - 5 ml	1EU013
24 tubes stand Ø16	1PT013

### TEST INSTRUCTIONS

With the pipette, put 2 ml of water to analyze in the reaction tube, close and shake several times.

Add 1 level scoop of No. 8 (black) nitrite-101, close, and shake for 30 seconds.  
Wait 5 minutes.

### MEASUREMENT

Select the analysis **324 NO<sub>2</sub> -N: 0.01 - 1 mg/L** (Result in mg/L of N)  
Take the tube for the blank (tube with red label) and insert it in the photometer.  
Put the black cover on top of the tube and press the key « zero ».  
Remove the tube and put the sample tube to analyze.  
Put the black cover on top of the tube and press the key « measure ».

**Concentration as mg/L NO<sub>2</sub> = result x 3.3**

## I-325 - Nitrite HR: 0.1- 5 mg/L NO<sub>2</sub><sup>-</sup>-N

Reagents kit reference: FTI2419018

Preparation time: ~ 12min

### REAGENTS

Reaction tubes

Blank Tube (red label)

Nitrite-101

### RECOMMENDED EQUIPMENT

Automatic pipette 0,1 - 1 ml 1PA022

Pipette Tip 0,1 - 1 ml 1EU012

24 tubes stand Ø16 1PT013

### TEST INSTRUCTIONS

With the pipette, put 0,5 ml of water to analyze in the reaction tube, close and shake several times.

Add 1 level scoop of No. 8 (black) nitrite-101, close, and shake for 30 seconds.

Wait 5 minutes.

### MEASUREMENT

Select the analysis **325 NO<sub>2</sub> -N: 0.1 - 5mg/L** (Result in mg/L of N)

Take the tube for the blank (tube with red label) and insert it in the photometer.

Put the black cover on top of the tube and press the key « zero ».

Remove the tube and put the sample tube to analyze.

Put the black cover on top of the tube and press the key « measure ».

**Concentration as mg/L NO<sub>2</sub> = result x 3.3**

## I-331- Ozone: 0.30 - 4.00 mg/L O<sub>3</sub>

Reagent kit: 1MT029  
Preparation time: ~ 6min

Photopod  
**LS/SP**

### REAGENTS

DPD 4 Tablet	1D4004P
Glycine Tablet	1NP000

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

#### 1- TOTAL CHLORINE + OZONE

Take a 12.5 ml sample of water to analyze in the graduated plastic tube.  
Add 1 DPD 4 tablet and shake to dissolve.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 5 minutes.  
Proceed to the measurement.  
This gives the value 1: total chlorine + ozone in mg/l of O<sub>3</sub>

#### 2- TOTAL CHLORINE ONLY

Take a 12.5 ml sample of water to analyze in the graduated plastic tube.  
Add 1 DPD 4 tablet and shake to dissolve.  
Add 1 DPD Glycine tablet and shake to dissolve.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 5 minutes.  
Proceed to the measurement.  
This gives the value 2: total chlorine in mg/l of O<sub>3</sub>

#### 3- OZONE

Concentration in mg/l of O<sub>3</sub> = value 1 - value 2

### MEASUREMENT

Select the analysis **331 O<sub>3</sub>:0.30 - 4.00mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure ».

*Please note that the refill kit's reference is 1MT337.*

## I-332 -Ozone: 0.03 - 0.65 mg/L O<sub>3</sub>

Reagent kit: 1MT029  
Preparation time: ~ 4min

Photopod  
**LS/SP**

### REAGENTS

DPD 4 Tablet	1D4004P
Glycine Tablet	1NP000

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

#### 1- TOTAL CHLORINE + OZONE

Take a 20 ml sample of water to analyze in the graduated plastic tube.  
Add 1 DPD 4 tablet and shake to dissolve.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement  
This gives the value 1: total chlorine + ozone in mg/l of O<sub>3</sub>

#### 2- TOTAL CHLORINE ONLY

Take a 20 ml sample of water to analyze in the graduated plastic tube.  
Add 1 DPD 4 tablet and shake to dissolve.  
Add 1 DPD Glycine tablet and shake to dissolve.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 2 minutes.  
Proceed to the measurement  
This gives the value 2: total chlorine in mg/l of O<sub>3</sub>

#### 3- OZONE

Concentration in mg/l of O<sub>3</sub> = value 1 - value 2

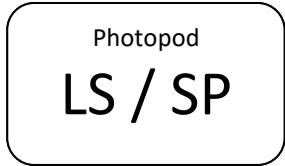
### MEASUREMENT

Select the analysis **332 O<sub>3</sub>:0.03 - 0.65mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT337.*

## I-340–HydrogenPeroxide: 2 - 200 mg/l H<sub>2</sub>O<sub>2</sub>

Reagent kit: 1MT148  
Preparation time: ~ 1.5min



### REAGENTS

Acidifying PT Tablet	1AP105
Hydrogen Peroxide HR Tablet	1AP105

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Acidifying PTtablet;crush it with the crushing rodand shake to dissolve ~ 30s  
Add 1 Hydrogen Peroxide HRtablet;crush it with the crushing rodand shake to dissolve ~ 30s  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **340 H<sub>2</sub>O<sub>2</sub>. : 2 - 200mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT321.*

## I-341–Hydrogen Peroxide: 0.05 - 2.00 mg/l H<sub>2</sub>O<sub>2</sub>

Reagent kit: 1MT149

Preparation time: ~ 2.5min

### REAGENTS

Hydrogen Peroxide LR Tablet                      1AP104

### EQUIPMENT

Graduated Plastic Tube                              14TP00  
Crushing Rod    1AP018  
Glass Tube    1CR099  
Plastic funnel    1EP021 (*consult us*)

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Hydrogen Peroxide LR tablet; crush it with the crushing rod and shake to dissolve ~ 30s  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 2 minutes  
Proceed to the measurement

### MEASUREMENT

Select the analysis    **341 H<sub>2</sub>O<sub>2</sub> : 0.05 - 2.00mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT322.*



## I-350 - pH 6.8 - 8.6

Reagent kit: 1MT036  
Preparation time: ~ 2min

Photopod

LS

### REAGENTS

Phenolred 1PR008

### EQUIPMENT

Glass Tube 1CR099  
Syringe 10 ml 1SU013

### TEST INSTRUCTIONS

With the syringe, take a 10 ml sample of water to analyze in the glass tube.  
Add 16 drops of Phenol red.  
Close and shake.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **350 pH:6.8 - 8.6mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT338.*

**I-392 - Phosphates: 0.50 – 13.0 mg/L PO<sub>4</sub><sup>3-</sup>P**

**I-380 - Phosphates: 1.00- 36.00 mg/L P<sub>2</sub>O<sub>5</sub>**

Reagent kit: 1MT030

Preparation time: ~ 12min

Photopod

**LS**

### REAGENTS

Phosphate 1Reagent            1RP018

Phosphate 2Reagent          1RP019

### EQUIPMENT

Glass Tube                              1CR099

Syringe 10 ml                         1SU013

### TEST INSTRUCTIONS

With the syringe, take a 10 ml of water to analyze in a glass tube

Add 8 drops of Phosphate 1Reagent

Close and shake.

Add 8 drops of Phosphate 2Reagent

Close and shake.

Wait 10 minutes.

Proceed to the measurement

### MEASUREMENT

Select the analysis    **392 PO<sub>4</sub> -P: 0.50 - 13.0 mg/L**            (Result in mg/L of P)

or                            **380 P<sub>2</sub>O<sub>5</sub> : 1.00- 36.0 mg/L**            (Result in mg/L of P<sub>2</sub>O<sub>5</sub>)

Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer

Put the black cover on top of the tube and press the key « zero »

Remove the tube and put the sample tube to analyze

Put the black cover on top of the tube and press the key « measure »

**Concentration as mg/L of PO<sub>4</sub> = result as mg/L of P x 3.1**

*Please note that the refill kit's reference is 1MT352.*

## I-390 - Phosphates: 0.06 - 1.30 mg/L PO<sub>4</sub><sup>3-</sup>-P

Reagent kit: 1MT186  
Preparation time: ~ 5 min

Photopod

SP

### REAGENTS

Phosphate 1 Tablet	1AP177
Phosphate 2 Tablet	1AP177

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyse in the graduated plastic tube.  
Add 1 Phosphate 1 Tablet, crush it with the crushing rod.  
Close the tube and shake to dissolve ~ 3 min  
Add 1 Phosphate 2 Tablet, crush it with the crushing rod and shake to dissolve ~ 1 min  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 1 minute.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **390 PO<sub>4</sub>-P 0.65 - 1.30 mg/L** (*Result in mg/L of P*)  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**Concentration as mg/L of PO<sub>4</sub> = result as mg/L of P x 3.1**

*Please note that the refill kit's reference is 1MT354.*

## I-391 - Phosphates: 0.06 - 1.60 mg/L PO<sub>4</sub><sup>3-</sup>-P

Reagent kit: 1MT030  
Preparation time: ~ 12min

Photopod

LS

### REAGENTS

Phosphate 1Reagent	1RP018
Phosphate 2Reagent	1RP019

### EQUIPMENT

Glass Tube	1CR099
Syringe 10 ml	1SU013

### TEST INSTRUCTIONS

With the syringe, take a 10 ml of water to analyze in a glass tube  
Add 2 drops of Phosphate 1Reagent  
Close and shake.  
Add 2 drops of Phosphate 2Reagent  
Close and shake.  
Wait 10 minutes.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **391 PO<sub>4</sub>-P: 0.06- 1.60 mg/L** (Result in mg/L of P)  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

**Concentration as mg/L of PO<sub>4</sub> = result as mg/L of P x 3.1**

*Please note that the refill kit's reference is 1MT352.*





## I-402 - Total Phosphates: 0.05 - 3 mg/L PO<sub>4</sub>-P

Reagents kit reference: FTI2419019

Preparation time: ~ 40 min

Photopod

LS / SP

### REAGENTS

Reaction Tubes

Blank Tube (red label)

Phosphate-101

Phosphate-102

Phosphate-103

### RECOMMENDED EQUIPMENT (consult us)

Automatic Pipette 1 - 5 ml	1PA023
Pipette Tip 1 - 5 ml	1EU013
24 tubes stand Ø16	1PT013
Wooden clamp	1PT007
Heating reactor	1RD010

### TEST INSTRUCTIONS

Turn on the heating reactor. Preheat at 100 °C.

Take one reaction tube and with the pipette, put 5 ml of water to analyze.

Add 1 level scoop of No. 4 (white) phosphate-103, close immediately, and shake for 30 seconds.

Put the tubes in the heating reactor at 100°C during 30 minutes.

After 30 minutes, take the tubes with the wooden clamp (be careful, they are very hot) and shake gently. Put the tube in the tube stand and let cool to room temperature (>20 minutes).

Add 2 drops (0.1 ml) phosphate-101, close and shake several times.

Add 1 level scoop of No. 4 (white) phosphate-102, close, and shake for 30 seconds.

Wait 5 minutes.

### MEASUREMENT

Select the analysis **402 PO<sub>4</sub>-P: 0.05 - 5mg/L** (Result in mg/L of P)

Take the tube for the blank (tube with red label) and insert it in the photometer.

Put the black cover on top of the tube and press the key « zero ».

Remove the tube and put the sample tube to analyze.

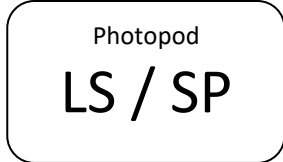
Put the black cover on top of the tube and press the key « measure ».

**Concentration as mg/L of PO<sub>4</sub> = result as mg/L of P x 3.1**

NOTA - If the analysis is performed without digestion only PO<sub>4</sub> ions are determined.

## I-410 - Potassium: 2.00 - 15.0 mg/L K

Reagent kit: 1MT168  
Preparation time: ~ 4min



### REAGENTS

Potassium Tablet 1AP189

### EQUIPMENT

Graduated Plastic Tube 14TP00  
Crushing Rod 1AP018  
Glass Tube 1CR099  
Plastic funnel 1EP021 (*consult us*)

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Potassium tablet, crush it with the crushing rod and shake to dissolve~ 45s  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 3 minutes.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **410 K: 2.00- 15.0mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT340.*



**I-420 - Silica: 10 - 300 mg/L SiO<sub>2</sub>**  
**I-421 - Silica: 0.20 - 10 mg/L SiO<sub>2</sub>**

Photopod

**LS**

Reagent kit: 1MT040  
Preparation time: ~8min

### REAGENTS

Ammonium Molybdate	1AM010
Sulfuric Acid ¼	1AS013
Oxalic Acid 10%	1AO000

### EQUIPMENT

Graduated Plastic Tube	14TP00
Plastic spoon	1J0000
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 20 ml sample of water to analyze in the graduated plastic tube.  
Add 1 spoonful to the brim of Ammonium Molybdate and shake to dissolve 30 s  
Add 7 drops of Sulphuric acid ¼ and shake.  
Wait 5 minutes.  
Add 15 drops of Oxalic acid 10% and shake.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **420 SiO<sub>2</sub>: 10 - 300mg/L**  
or **421 SiO<sub>2</sub>: 0.20 - 10 mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT341.*

## I-422 - Silica: 5 - 150 mg/L SiO<sub>2</sub>

Reagent kit: 1MT173  
Preparation time: ~ 12 min

Photopod

SP

### REAGENTS

SilicaHR 1 Tablet	1AP290
Silica PR Tablet	1AP290
Silica HR 2 Tablet	1AP290

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Silica HR 1 Tablet, crush it with the crushing rod. Close the tube and shake strongly to dissolve. ~ 2 min  
Add 1 Silica HR 2 Tablet, crush it with the crushing rod. Close the tube and shake strongly to dissolve. ~ 2 min  
Add 1 Silica PR Tablet; crush it with the crushing rod. Close the tube and shake strongly to dissolve ~ 6 min  
Wait 2 minutes.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **422 SiO<sub>2</sub> : 5 - 150mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT342.*

## I-423 - Silica: 0.05 - 10 mg/L SiO<sub>2</sub>

Reagent kit: 1MT170  
Preparation time: ~ 12 min

Photopod  
**LS/SP**

### REAGENTS

Silica 1 Tablet	1AP181
Silica PR Tablet	1AP181
Silica 2 Tablet	1AP181

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Silica 1 Tablet; crush it with the crushing rod. Close the tube and shake strongly to dissolve. ~ 2 min  
Add 1 Silica PR Tablet; crush it with the crushing rod. Close the tube and shake strongly to dissolve. ~ 6 min  
Add 1 Silica 2 Tablet; crush it with the crushing rod. Close the tube and shake strongly to dissolve. ~ 2 min  
Wait 2 minutes.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **423 SiO<sub>2</sub> : 0.05 -10mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT343.*

## I-430 - Sulfates: 10 - 400 mg/L SO<sub>4</sub><sup>2-</sup>

Reagent kit: 1MT080  
Preparation time: ~ 11min

Photopod

LS

### REAGENTS

Sulfates n°1 Reagent	1RS015
Sulfates n°2 Reagent	1RS016

### EQUIPMENT

Glass Tube	1CR099
Syringe 10 ml	1SU013

### TEST INSTRUCTIONS

With the syringe, take a 10 ml sample of water to analyze in the glass tube  
Add 5 drops of Sulfates n°1 Reagent, close the tube and shake strongly to 15s  
Add 10 drops of Sulfates n°2 Reagent, close the tube and shake strongly to 15s.  
Wait 10 minutes.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **430 SO<sub>4</sub>: 10 - 400mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT344.*

## I-431-Sulfates: 10-200 mg/L SO<sub>4</sub><sup>2-</sup>

Reagent kit: 1MT171  
Preparation time: ~ 6min

Photopod

SP

### REAGENTS

Sulfate Tablet 1AP154

### EQUIPMENT

Graduated Plastic Tube 14TP00  
Crushing Rod 1AP018  
Glass Tube 1CR099  
Plastic funnel 1EP021 (*consult us*)

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Sulfate Tablet; crush it with the crushing rod and shake to dissolve ~ 45s  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Wait 5 minutes.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **431 SO<sub>4</sub>: 10 - 200mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT041.*

## I-440 - Sulfide: 0.05 - 0.60 mg/L S

Reagent kit: 1MT172  
Preparation time: ~ 6 min

Photopod

LS

### REAGENTS

Sulfide n°1 Tablet	1AP168
Sulfide n°2 Tablet	1AP168

### EQUIPMENT

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099

### TEST INSTRUCTIONS

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Sulfide n°1 Tablet and 1 Sulfide n°2 Tablet; Crush it with the crushing rod and shake to dissolve. ~ 1 min  
Wait 5 minutes.  
Proceed to the measurement

### MEASUREMENT

Select the analysis **440 S: 0.05- 0.60mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT345.*

**I-124 - Total chlorine: 0.10- 2.00 mg/L** *Method compatible with HACH  
DPD Total Chlorine Reagent Powder Pillows, 10-mL*

Photopod

SP

Reagent kit: 1MT117 (*option 1*) or 1MT118 (*option 2*)  
Preparation time: ~ 8 min

**REAGENTS**

DPD Total Chlorine Powder Pillows, 10-mL      FHA2105669

**EQUIPMENT Option 1**

Graduated Plastic Tube      14TP00  
Glass Tube      1CR099  
Plastic funnel      1EP021 (*consult us*)

**EQUIPMENT Option 2 for more accurate analysis**

Graduated pipette 10 mL      1PG003  
Glass Tube      1CR099  
Rubber pipette filler 10 mL      1PD006 (*consult us*)

**TEST INSTRUCTIONS Option 1**

Rinse the graduated plastic tube and glass tube three times with water to analyze.  
Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 DPD Total Chlorine Powder Pillow (carefully open the bag at tear line level)  
Cap the plastic tube and invert it about 20 seconds to dissolve the reagent  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Within 6 minutes of reagent addition, proceed to the measurement.

**TEST INSTRUCTIONS Option 2 for more accurate analysis**

Rinse the glass tube inner part of cap and graduated pipette, three times, with water to analyze.  
Using graduated pipette, take a 10 ml sample of water to analyze in the dried glass tube.  
Add 1 DPD Total Chlorine Powder Pillow (carefully open the bag at tear line level)  
Cap the glass tube and invert it about 20 seconds to dissolve the reagent  
Within 6 minutes of reagent addition, proceed to the measurement.

**MEASUREMENT**

Select the analysis    **124 Cl<sub>2</sub> total:0.10 - 2.00mg/L**  
Rinse the blank glass tube and inner part of cap, three times, with water to analyze.  
Fill the glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the glass blank tube  
Put the glass sample tube, previously prepared with reagent, to analyse.  
Put the black cover on top of the tube and press the key « measure »

## *INTERFERENCES*

Highly buffered samples or extreme pH may prevent the correct pH adjustment of the water to analyse by the reagents. Adjust to pH 6–7 with acid (sulfuric acid, 1 N) or base (sodium hydroxide, 1 N). Correct the test result for the dilution caused by the volume additions

Positive interference at all levels: bromine, chlorine dioxide, iodine, ozone, and organic chloramines

Interference of oxidized manganese and oxidized chromium can be corrected as follows:

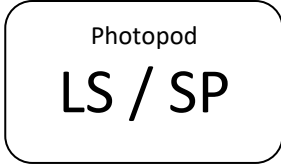
- 1) Adjust the pH of 10 mL of test water to 6–7;
- 2) Add 3 drops of Potassium Iodide 30 g/L to the sample and mix;
- 3) Wait 1 minute;
- 4) Add 3 drops of Sodium Arsenite 5 g/L and mix;
- 5) Measure the concentration of the treated sample;
- 6) Subtract this result from the result obtained by the test water without the treatment to obtain the correct chlorine concentration.

*Please note that the refill kit's reference is 1MT119*





## I-451 - Turbidity: 10 - 100 NTU



### *EQUIPMENT*

Glass Tube                                    1CR099

### *MEASUREMENT*

Select the analysis    **TURBI:451 Turbi: 10-100 NTU**

Fill a glass tube with Demineralized water, put the cap and insert it in the photometer.

Put the black cover on top of the tube and press the key « zero ».

Remove the glass tube, empty it and fill it with water to analyze.

Insert the tube in the photometer.

Put the black cover on top of the tube and press the key « measure ».

## I-460 -Zinc: 0.05- 4.00 mg/lZn

Reagent kit: 1MT190  
Preparation time: ~ 2min

Photopod

LS

### REAGENTS

Zinc 1 Reagent	1RZ011
Zinc 2 Reagent	1RZ012

### EQUIPMENT

Crushing Rod	1AP018
Glass Tube	1CR099
Syringe 10 ml	1SU013

### TEST INSTRUCTIONS

With the syringe, take a 10 ml sample of water to analyze and introduce in the glass tube  
Add 5 drops of Zinc 1 Reagent  
Shake  
Wait 1 minute  
Add 10 drops of Zinc 2 Reagent  
Shake  
Proceed to the measurement

### MEASUREMENT

Select the analysis **460 Zn: 0.05- 4.00mg/L**  
Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer  
Put the black cover on top of the tube and press the key « zero »  
Remove the tube and put the sample tube to analyze  
Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT356.*

**I-461 - Zinc: 0.10- 4.00 mg/IZn**

Reagent kit: 1MT043  
Preparation time: ~ 6 min

Photopod

**SP***REAGENTS*

Pack Zinc	1PZ001
Zinc Tablets	1PZ001
Dechlor Tablets	1PZ001
EDTA Tablets	1PZ001

*EQUIPMENT*

Graduated Plastic Tube	14TP00
Crushing Rod	1AP018
Glass Tube	1CR099
Plastic funnel	1EP021 ( <i>consult us</i> )

*TEST INSTRUCTIONS*Water not containing copper or chlorine

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Zinc tablet, crush it with the crushing rod and shake to dissolve.  
Wait 5 minutes.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement.

Water containing copper

Follow the instructions for « Water not containing copper or chlorine» above and proceed to the measurement.  
The result is the concentration in zinc and copper Conc. (Zn + Cu)  
Transfer the content of the glass tube in the graduated plastic tube.  
Add 1 EDTA tablet, Add 1 Zinc tablet, crush it with the crushing rod and shake to dissolve. (the color due to zinc disappears, the color due to copper remains).  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement  
The result is the concentration in copper Conc. (Cu)

Concentration zinc:

$$\text{Conc. (Zn)} = \text{Conc. (Zn + Cu)} - \text{Conc. (Cu)}$$

Water containing chlorine

Take a 10 ml sample of water to analyze in the graduated plastic tube.  
Add 1 Dechlor tablet, crush it with the crushing rod and shake to dissolve.  
Add 1 Zinc tablet, crush it with the crushing rod and shake to dissolve.  
Wait 5 minutes.  
Fill a glass tube with this preparation using the plastic funnel then cover the tube.  
Proceed to the measurement.

## MEASUREMENT

Select the analysis

**461 Zn: 0.10 – 4.00 mg/L**

Fill a glass tube with water to analyze without reagent, put the cap and insert it in the photometer.

Put the black cover on top of the tube and press the key « zero ».

Remove the tube and put the sample tube to analyze.

Put the black cover on top of the tube and press the key « measure »

*Please note that the refill kit's reference is 1MT346.*