PRIMELAB 2.0
MULTITEST
PHOTOMETER

DEVELOPED
in GERMANY

v20

Introduction

Dear PrimeLab 2.0 user:

We are pleased that you have decided to purchase a PrimeLab 2.0 Multitest Photometer kit to analyse your water quality / quality of liquid samples. With this kit you have acquired a device "Developed in Germany" by Water-i.d. ® GmbH.

Highly accurate readings on 18 parallel wavelengths, Bluetooth®-USB-WiFi-4G-connections, powerful LabCOM® software and app, synchronized via a free cloud service, large HD touch display and the option to connect test probes are just some features** of the new PrimeLab 2.0 which supersedes the well-established PrimeLab 1.0.*

Whilst normal Photometers perform tests on one selected wavelength only, the PrimeLab 2.0 receives data from 18 different wavelengths in parallel with each measurement, covering the full VIS-spectrum as well as key parts of UV- and IR- spectrum. 3 sensors with 6 wavelengths each are connected in parallel. Correspondent LEDs are set up at 180° as well as at 90° to enable NTU-Turbidity, PTSA and Fluorescein measurements as well. Very narrow peaks between 390 and 950 nm allow utmost accurate readings, similar to the performance of a spectrophotometer.

The PrimeLab 2.0 features a state-of-the-art 5.5" colour HD touch-display. The large display gives a perfect overview of all basic info, such as battery status, Bluetooth®, Wi-Fi and 4G connectivity and offers highest flexibility for you to arrange icons as you would on your smartphone.*

As with PrimeLab 1.0, the PrimeLab 2.0 will offer a flexible parameter setup with all options to upgrade whenever needed. The PrimeLab 2.0 offers more than 140 different parameter methods, covering the needs of many different industries. Water-i.d.® reagents are entirely produced in Germany, UK and Spain.

We wish you joy and successful testing with YOUR PrimeLab 2.0!

Latest user manual

Due to being able to update your PrimeLab 2.0 (internet connection required) and -by that- receiving the latest features, this user manual might not contain the latest information. You can always download the most up-to-date user manual from the download section under www.primelab.org (QR-Code)

Laboratories **Cooling Towers** **Marine Industry** **Boiler Water**

Waste Water **Potable Water** **Food Processing** **Water Works**

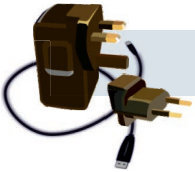
**via USB Internet Stick / accessories / may be subject to costs for connection | **some features might not immediately available at product launch*

Content

Parts list

PrimeLab 2.0 — *PL02B...*

Light shield — *PL2Sp-LS*



Charger/cable/plugs — *PL2Sp-DC / USBcable*

24mm vial — *PLSp-Kv2410*

*16mm vial** — *PLSp-Kv1610*

*1ml semi-micro-vial (rectangle)** — *PLSp-Kv1*

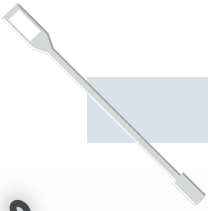
**not included in the basic equipment (PL02B)*

Parts list

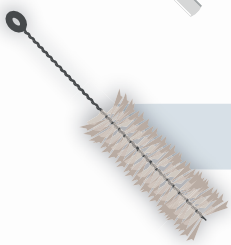
24mm vial adapter PL2Sp-Adk24

*16mm vial adapter** PL2Sp-Adk16

*1ml semi-micro-vial (rectangle) vial adapter** PL2Sp-AdkEp



Stirring rod (10.5/13 cm) PLSp-str / SPstr1



Cleaning brush PLSp-clb1

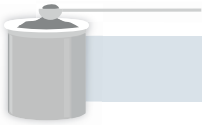
**not included in the basic equipment (PL02B)*

Parts list

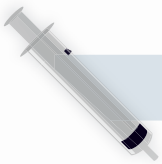
*Tablets** *Tbs...*

*Powder Pillow** *PP...*

*Liquid reagents** *PL...*



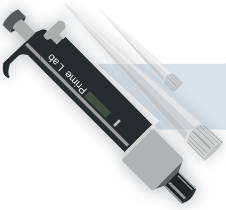
*Powder in can** *Plpow...*



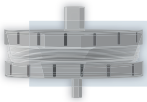
Graduated syringe *PLSp-inj...*

**not included in the basic equipment (PL02B)*

Parts list



*Lab-Pipette** PLSp-PIP...



*Filter-holder** PLSp-Filtad1

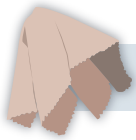
*Filter paper in a can** PLSp-Filt...

*Calibration standards**
in vials PL2Sp-Ref

*Calibration standards**
in bottles or sachets EM...buf...

**not included in the basic equipment (PL02B)*

Parts list



Micro fibre cleaning cloth *PL2Sp-mft-1*

*Measuring/dilution cup** *SVZdev100*

*Glass-bottle w. stopper** *PLSp-GlsBot50ml*

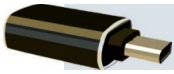
*Digital thermometer** *PLSp-DCthermContr*

*Mini-refrigerator** *PLSp-Leg-Fridge*

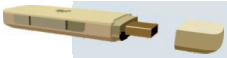
**not included in the basic equipment (PL02B)*

Parts list

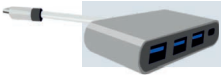
*Heat block** PLSp-CODheatblock-...



*USB A-C switch** PLSp-USBac



*GSM-modem*** PLSp-GSM



*USB-hub** PLSp-USBhub

*Electrode** PLSp-Ele...

*not included in the basic equipment (PL02B)

**may be subject to costs for connection

The PrimeLab 2.0

! *Please note: In sleep- and off-mode, wait several seconds after pressing the power button for 1 second until the system has booted up and the screen has switched on. Please also note that there may generally be a time delay between pressing the button and the response of the device.* !

Pressing the On/Off button*

a) Press briefly:
When device is on: Display goes off

b) Press for 1 second:
When the device is on: option menu for shutdown/sleep mode appears

c) Press for 3 seconds:
When device off: Switch on
When the device is on: "Power menu" opens. Select between:
- *Sleep mode (standby)*
- *Shutdown*
- *Restart*

d) Press for 10 seconds:
Emergency stop of the PrimeLab

Vial adapter
Vial (24mm/16mm/1ml semi-micro (rectangle))
Triangle for correct vial position
*Power button**
Camera
Display
USB type C port

Device information
Light shield (not necessary for 24mm cuvettes with black lid)

The PrimeLab 2.0

Vial-adapters

Your PrimeLab 2.0 works with different vial sizes, such as round 24mm, 16mm and rectangle 1ml semi-micro-vials (rectangle), each needing a different vial-adapter. To ensure a perfect fit of the specific vial-adapter, please follow the instructions below, showing you how to change to a different adapter: Unlatch the adapter installed by turning it 90° counter clockwise to be able to take it out. Enter the adapter by placing it on the transparent measurement-chamber and turn it until you feel it slides in position. Then turn it 90° clockwise until you feel/hear a click. Make sure the adapter does not wiggle.

**Make sure to align the arrow on the side of the 16mm adapter, with the arrow of the measurement chamber. If the adapter cannot be turned smoothly or only with high force, please put a small drop of silicon-grease on the edge of the transparent part of the measurement chamber.*

**It is possible that there is no arrow on the adapter yet. This will only appear on upcoming models. If your model does not have a triangle, please make sure that the arrow on the device points to the elevation on the side of the adapter.*

Charging the battery

Your PrimeLab 2.0 has a powerful lithium-ion battery that can be charged with the supplied DC adapter plus USB cable. The PrimeLab 2.0 can be charged with any USB charging adapter and cable. However, we recommend using the supplied power adapter and cable as this allows the unit to be charged in fast charging mode. The DC adapter has a 2-pin built-in plug, suitable e.g. for the USA.

However, we offer interchangeable plugs for e.g. Europe, UK and Australia that can be slid over the USA socket. For the fastest charging results, connect the charger to the PrimeLab 2.0 while the PrimeLab 2.0 is switched on. Switch on your PrimeLab 2.0 off after plugging it in to charge.

More about the charging procedure and the adapters of PrimeLab 2.0 on our YouTube channel:

Scan me

Icons

Bluetooth

WiFi

Display

General Settings

Sound

Device Information

Cloud

Sampling Points

Icons

Favourites

Calculator

Main Menu

Battery

Search (General)

Create New Account

Edit

Return

Icons

Delete (General)

Settings

Operator

GSM connection*

Dosage-recommendation

Parameter

Ideal ranges

Index calculation

**via USB Internet Stick / accessories / may be subject to costs for connection*

Icons

Active Chlorine Calculation

Water treatment products

Calibration

Save

Test

Request parameter code

Activate parameter

Add new...

Icons

Filter

Check for updates / update available

Refresh

Log Out

QR Scanner/Camera *(Available for you soon)*

EMPTY
due to technical reasons

First Setup

Prior first use, you must connect the PrimeLab 2.0 with a USB cable to either the charger or your computer, to wake it up from shipping mode! Shipping mode is terminated immediately after the PrimeLab is connected to the charger (after less than 1s). Not doing so means that the device will not turn on. After that, switch on by pressing the on/off button for 3 seconds.

Once PrimeLab 2.0 is switched on for the first time, you have to select the language you want to use the device with and the country you are located (for Wi-Fi settings). The entire First Setup will be in English. It is possible to change language and country settings after completing the First Setup sequence (menu: 'Settings'). To directly setup your cloud account on the device, please set up a Wi-Fi connection during First Setup. You can still add, delete or edit internet connections later (menu: 'Settings').

Language

Defining a language is required to let the PrimeLab 2.0 know, in which language it shall communicate with you. Please select the language you feel comfortable with:

- *Tap on the drop-down menu and select your preferred language*
- *Click on "Ok"*

Country

Defining a country is required for the device to operate on the correct Wi-Fi frequency. On a ship, you should therefore select the country under which the routers run. Please select the country where your PrimeLab 2.0 will be operated (Wi-Fi network):

- *Tap on the drop-down menu and select a country*
- *Tap on "Ok". (PrimeLab might re-start to re-boot with these settings)*

WiFi

If you already want to setup your internet connection, please choose an internet connection from the list of available networks, found by PrimeLab 2.0

- *You can still connect to (another) Wi-Fi network later on (menu: 'Settings')*

Cloud

The free LabCOM® cloud provides full access to all test results, sampling points and individual water treatment chemicals either through a regular internet browser (http://labcom.cloud) or on a smartphone (Android/iOS), tablet or on a computer (Windows/Mac). Data is synchronized automatically and instantly available to review. All you need is a valid account:

- *Visit: https://labcom.cloud/*
- *Register to the cloud by typing in a valid email-address and a password of your choice (6 characters minimum)*
- *If you already have a LabCOM® cloud account, login with your known login details*
- *All data from your cloud-account will be synchronized to your PrimeLab 2.0 and back*

Time zone

- *This is needed to display the date/time correctly.*

Your PrimeLab 2.0 is now ready for use. If you want to change any settings, please do so from the 'Settings' menu.

Home Screen

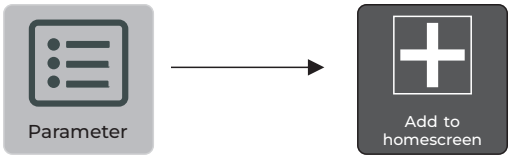
The home screen of your PrimeLab 2.0 is the screen which appears after switching on the device. You can individualize your PrimeLab 2.0 home screen.

Enter main menu

To enter the main menu, tap on the 3-lines symbol at the lower end of the home screen.

Create shortcuts

If you want to create a shortcut of one of the icons of the main menu on the start screen, press and hold one of the icons. It changes shape slightly and you are asked if you want to install a shortcut on the home screen. Tap the plus to create the shortcut. This way you can customise your home screen with the icons you need most often. If you do not want to create a shortcut, tap anywhere on the menu screen to deselect it.



To remove an existing shortcut, hold it down and tap the "minus" symbol in the top right corner of the icon.

Home Screen background graphic

As with your smartphone, you can select from various home-screen background graphics. To do so, tap on the main menu symbol, choose ‚Settings', followed by a tap on Display. There you will find an entry ‚Background'. Tap on the background graphic you like. It will instantly be taken as your new home screen background graphic.

Back to main menu

If you are in the main menu and want to return to the home screen, just swipe down the touch screen.

! *Please note that there may generally be a time delay between tapping the display and the device responding.* !

Status bar

The status bar of your PrimeLab 2.0 is always visible on top of the PrimeLab 2.0 display:

It can be extended by swiping it down.

A: Time and date are shown. This time stamp will also be used when test results are saved, so please make sure the date and time settings are correct.

B: This icon is a shortcut to the 'Settings' menu which will be explained on the following pages.

C: Wi-Fi connection (blue when turned on / white if switched off)

D: LabCom® cloud-connection (blue when logged in / white if switched off)
An exclamation mark (!) is displayed if you are logged in but there is no internet connection.

E: Indicates if the speaker is switched on or off.
Note: If switched off, you won't be able to receive audio-feedback of timer countdowns

F: By shifting the dot left and right, you can decrease/increase the brightness of the display

G: This icon indicates that an update for your PrimeLab 2.0 is available

H: Battery status indicator

I: News for you! Check for latest PrimeLab 2.0 news in the 'News' menu

**via USB Internet Stick / accessories / may be subject to costs for connection*

Lock Screen

To protect the PrimeLab 2.0 from unauthorized access to the device's settings and applications, you have the option of activating a lock screen. If set up, the lock screen becomes active as soon as the PrimeLab 2.0 screen turns off (e.g. after standby and after restarting the device).

Enable lock screen

Go to "Settings" --> "Security" in the main menu.
Move the slider at "Activate lock screen" to the right so that it lights up green.
Enter any 4-digit numerical code and confirm it by entering it again. The lock screen is now active.

Disable lock screen

Go to "Settings" --> "Security" in the main menu.Move the slider at "Activate lock screen" to the left so that it lights up red.
Enter your lock screen code (see "Enable lock screen") to deactivate the lock screen.

Settings

To open the 'Settings' menu click on the settings icon in the 'Main Menu'.

Operators

Each measurement file does not only show the test result in connection with the tested sampling points plus time stamp, but also the operator who conducted the test. When receiving your PrimeLab 2.0, there already is a 'Default' operator in place, but you can add as many operators as you like.

• Tap on "Operator" in the 'Settings' menu

• To add an operator, either tap on ,+' or the 3-bar menu button followed by 'Add Operator' and insert all required data. Once done, tap the ,save' button.

• To edit an operator, swipe the operator's name to the right, followed by a tap on the edit button.

• To delete an operator, swipe the operator's name to the left, followed by a tap on the delete button. You can also tap-hold an operator's name followed by tapping additional ones. A delete button will appear at the lower end of the display.

• To switch between operators, simply tap on the tick-box on the right side of the operator's name. For subsequent measurements, this operator will then be saved together with the measurement data.

• To search for an operator, simply tap the 3-bar menu button, followed by a tap on the search button. Then enter (part of) the operator's name you are searching for.

Measurement settings

Tap on "Measurement settings" to activate the professional mode or to adjust the signal intensity of iron in oil. When the professional mode is active, the animated step-by-step instructions are no longer displayed during measurements. To reactivate the animations and instruction texts, please deactivate the professional mode.

Calibration

Because of the innovative PrimeLab technology, it is no longer necessary to return the photometer for calibration. The precision of the sensors is so good, that the strength of the light source (LED) is measured and the system is calibrated on basis of the measured LED-values. Calibration should be carried out on a regular basis (e.g. every month) to ensure accurate test results at all times. Nevertheless, some special water-parameters, such as NTU-Turbidity, require a special calibration procedure which influences the measurement curve installed on your PrimeLab 2.0.

• Tap on "Settings" --> "Calibration and Indexing" to open the calibration menu.
• Select the calibration procedure you want to carry out by tapping on one of them:

PrimeLab
PTSA
NTU-Turbidity

If you receive an error message 'calibration failed' , please refer to the ERROR section at the end of this chapter.

**via USB Internet Stick / accessories / may be subject to costs for connection*

Continued...

Settings

PrimeLab calibration

A step-by-step procedure will be displayed on your PrimeLab 2.0 screen. Please make sure, that:
• The transparent part of the PrimeLab 2.0 measurement chamber is perfectly clean.
• The adapter to enter 24mm vials is installed properly.
• There is no vial inside the measurement chamber.
• The light shield is properly set on top of the measurement chamber.

Tap on 'PrimeLab' to start the PrimeLab calibration. Follow the instructions displayed on the PrimeLab 2.0 screen. Once completed, a message 'Calibration successful' will appear.
In case your PrimeLab is linked to the LabCOM® cloud, a calibration certificate (PDF) will be available in your account under www.calibrations.labcom.cloud.

PTSA calibration

Please perform a PrimeLab calibration prior to the PTSA calibration.

A step-by-step procedure is displayed on the screen of your PrimeLab 2.0. Please make sure that:
• The measuring chamber of the PrimeLab 2.0 is clean,
• The 24mm cuvette adapter is correctly inserted,
• There is no cuvette in the measuring chamber,
• The properly sealed 24 mm cuvettes with calibration solutions (not expired) 0/ 100/400 ppb PTSA are ready.
• All cuvettes are 100% clean, without fingerprints, scratches or stains.
• Always align the arrow on the cuvette with the arrow on the measuring chamber.

In the "Settings" menu, go to the "Calibration and Indexing" option and then to "PTSA" to start the calibration process. Follow the instructions displayed on the PrimeLab 2.0 screen.

NTU-Turbidity calibration

Please perform a PrimeLab calibration prior to NTU-Turbidity calibration.

A step-by-step procedure will be displayed on your PrimeLab 2.0 screen. Please make sure, that:
• The transparent part of the PrimeLab 2.0 measurement chamber is perfectly clean.
• The adapter to enter 24mm vials is installed properly.
• There is no vial inside the measurement chamber.
• You have properly sealed 24mm glass vials with calibration solutions (not expired) 0.5/10/1000 NTU' in hand.
• Calibration solution vials are 100% clean, without fingerprints, scratches, spots.
• You always align the arrow on the vial with the arrow on the measurement chamber.

In the "Settings" menu, go to the "Calibration and Indexing" option and then to 'NTU-Turbidity' to start the calibration process. Follow the instructions displayed on the PrimeLab 2.0 screen.

Use caution to shaking-/rest-instructions on the standard vials (0.5/10/1000 NTU):

Attention:
Please choose a cuvette that you use exclusively for the turbidity measurement. It must not be used for any other test.

Continued...

Indexing of a cuvette for turbidity measurement:

Tap on: "Settings" --> "Calibration and indexing" --> "Index cuvette". Before you start the measurement, slowly turn the sample cuvette upside down 2-3 times and leave the sample undisturbed for 2-3 minutes. The sample cuvette with the standard is now ready for measurement.

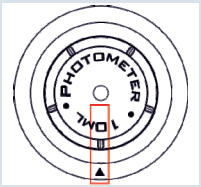
Attention:

Please select a cuvette that you use exclusively for the turbidity measurement. This must not be used for any other test! *Production-related irregularities (in the glass of the cuvettes) may be present on the cuvettes. To ensure reproducible results, the cuvettes must be indexed. For indexing, a measurement is performed at a total of 7 points on each cuvette. The inscription on the lid is used to identify these 7 locations on the cuvette.*

Preparation:

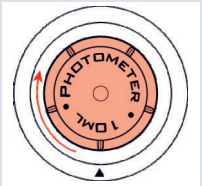
- *Fill a dry, residue-free cuvette up to the mark with turbidity-free water (see below) and replace the lid.*
- *Hold the cuvette by the lid and remove all dirt residues with a microfiber cloth.*
- *Switch on the PrimeLab 2.0 and place the cuvette in the measuring shaft.*

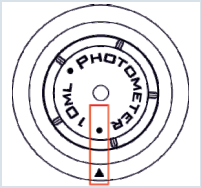
1. Make sure that the "0" (zero) on the label of the cuvette lid is upside down from your point of view and that its position corresponds to the arrow of the PrimeLab 2.0.



2. Tap on "Measure".

3. Turn the cuvette clockwise until the point (•) of the inscription of the on the lid is aligned with the arrow of the device

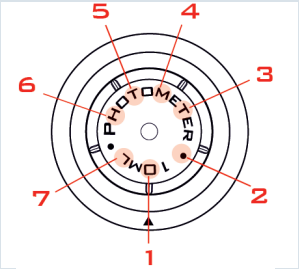




4. Tap on "Measure".

Continued...

5. Continue until all 7 indexing points have been measured. indexing points have been measured (diagram). You will be guided by the PrimeLab 2.0.



□ (Zero)
•
T_1
M
T_2
H
L

6. After successful indexing, the cuvette lid, the smallest indexed value and the index of the ideal position are shown in green on the display. Mark the cuvette (not the lid!) at the position of the index of the ideal position, e.g. with a waterproof pen. Important: Place your mark above the 10ml line, otherwise the mark will influence your measurement! Press "Done".

7. For subsequent measurements, insert the cuvette so that the marking point of the cuvette is aligned with the arrow of the instrument.

Produce turbidity-free water:

Please use min. 1 litre of dilution water (distilled/demineralized/deionized). If the turbidity of the dilution water is above 0.5 NTU (FNU), the water must be filtered with a sample filter or membrane filter (0.1 µm). Please clean already used cuvettes with 1:1 dilution hydrochloric acid/dest. Water and rinse them thoroughly several times with dilution water.

Possible sources of error

Indexing can be incorrect for a few reasons:

• Wrong solution: Make sure that you use a solution below 0.5 NTU.

• The light passage in the measuring chamber (PrimeLab 2.0) is dirty or wet: Make sure that the transparent part (behind the cuvette adapter) is clean and that the cuvettes used have no fingerprints, dirt or scratches. Make sure that the marking points on the lid of the cuvette match the arrow on the measuring chamber of the PrimeLab 2.0. The PrimeLab emits light (LED) from one side of the measurement chamber through the measurement chamber to the sensor(s) on the opposite side or at a 90° angle. Any interference (dirt, fingerprints, scratches) will affect the light beam (lower transmission) and result in incorrect readings and therefore incorrect or failed indexing.

• Hardware problem: In very rare cases, failed indexing can also be due to a hardware problem, e.g. a defective LED or a sensor that is not working properly. If all of the previously mentioned solutions have not helped to successfully perform indexing, please contact your PrimeLab 2.0 dealer.

Possible calibration error sources:

A calibration can fail due to some reasons which can be:

• missing PrimeLab calibration: Perform a PrimeLab calibration prior another calibration.

• The calibration solution does not match the curve installed on PrimeLab: Check that the calibration solution used is the right one for the calibration you want to perform. Check it is not expired and the volume taken (ml) is exactly the volume needed for the calibration.

• Optical path in the measurement-chamber (PrimeLab) dirty or wet: Make sure that the transparent part (behind the vial-adapter) is properly clean and the vials used are without fingerprints, dirt, scratches. Make sure the arrow on the vial matches the arrow on the measurement-chamber of the PrimeLab. The PrimeLab beams light (LED) from one side of the measurement-chamber through the measurement chamber to the sensor(s) on the opposite or 90° side of the measurement chamber. Any interference (dirt, fingerprints, scratches) influence the light beam (less transmission) and will lead to wrong readings / wrong or failed calibration.

• Hardware issue: In very rare cases, a failed calibration can also be down to hardware issues, such as a defective LED or a not properly working sensor.

If all before named solutions did not help to successfully perform a calibration, please contact your PrimeLab distributor for a factory-check of your PrimeLab 2.0.

Data Scheme

All test results are stored under "Sampling Point" to keep track of your test results in connection with the sampling point you performed the test for. When receiving your PrimeLab 2.0, a "default" sampling point is already active. You can define as many individual sampling points as you wish (in 'sampling point' menu). When adding sampling points, you might not want to use the pre-defined field-names, such as "name", "identifier" ... but you might want to give those fields individual names. You can do so under 'Data Scheme' in the 'Settings' menu.

To change the field names of sampling points, swipe the sampling point you want to edit to the right and click on the round edit icon.

• Tap on 'Sampling Points Scheme ' and choose the field name you want to edit.

• You can also reset your settings to "default", by tapping the 'Reset to Default' button.

Continued...

Settings

Connections

The "Connections" menu allows you to edit the WiFi and Bluetooth® settings. An internet connection is necessary to communicate with the LabCOM® cloud (synchronizing sampling points, measurements and water treatment chemicals), to receive updates and for automated online activation of additional test-parameters.
An internet-connection can be established by Wi-Fi or by a GSM-modem.*
Your PrimeLab 2.0 also offers a Bluetooth®-connection which, by the date of printing this manual, is without use. To manage connections, tap on the 'Connections' symbol from the ,Settings' menu.

• Tap on Wi-Fi: A list of available Wi-Fi networks will be displayed. If Wi-Fi is activated and a Wi-Fi connection is established, the paired network will be displayed in blue.
• Enable or disable Wi-Fi connection by tapping the green/red point.
• To add a WiFi connection, tap on Wi-Fi followed by tapping one of the networks found. Then enter the network-password in the password field and confirm.
• To delete a network which was previously paired, slide the network line to the left and tap the delete symbol.

GSM:*
Internet connections established via the USB-port (e.g. GSM-stick) can't be managed under 'Settings'. The connection establishes automatically, once a GSM-modem with valid SIM-card was plugged into the USB-port.*

Display

Under 'Display' on the 'Settings' menu, you can:
• Adjust the brightness of your display (influences the battery time)
• Set the auto-display-off time (after what time the display shall be switched off)
• Set the auto-power-off time (after what time the PrimeLab 2.0 shall shut down)
• Define an individual home screen graphic
• Activate / deactivate the screensaver (after 30 sec. inactivity)
• Activate/deactivate display dimming. If display dimming is active, the screen automatically becomes a few levels darker after 30 seconds. After tapping the screen, it becomes bright again.

Continued...

Settings

General Settings

Under 'General Settings' on the 'Settings' menu you can:

• Change the country (location) by tapping on 'Country' and selecting the preferred one. This setting is important for a successful Wi-Fi connection as there are specific Wi-Fi settings along with different countries.
• Change the language by tapping on 'Language' and select the preferred one.
• Activate 'automatic' to receive date and time from the network, as long as PrimeLab 2.0 has established a working internet connection. Deactivating allows you to change date and time manually.
• Change the time-zone by tapping on it and select your time-zone.
The time-zone is important in case you or an administrator applied "rules" (admin menu under www.labcom.cloud) which are time-sensitive, such as "pH needs to be tested every morning at 9:00 am local time".

Sound

Under ‚Sound' on the 'Settings' menu you can:
• Enable/disable audio alerts. Note: If switched off, you won't be able to hear audio-feedback of timer countdowns.

Device Information

Under 'Device Information' from the 'Settings Menu' you can:
• Check Database version
• Check Firmware version
• Check Branding of the PrimeLab 2.0
• Check serial number of your PrimeLab 2.0
• Legal notices (including Licenses, Privacy Policy, GTC, safety instructions and EULA)
• Check for updates
Under 'Device Information' you can also check if updates for your PrimeLab 2.0 are available by tapping on "check for Updates".

To enable the PrimeLab to check on available updates, an internet connection must be established. By updating your PrimeLab 2.0, you will always have the latest parameters, curves and features.

• Check for Parameters
If your request for additional parameters got approved but you still cannot see them as 'activated' on the parameters list, you might have to refresh the parameter's list by tapping on 'Update Parameters'
• Perform a Factory-Reset
Performing a factory reset means that all user data (sampling points, test results, cloud logins, water treatment products) will be deleted on the PrimeLab 2.0(not in the cloud) and the PrimeLab will launch in „First Setup" mode the next time it gets switched on. All activated parameters will remain activated!

Continued...

Settings

Setting Ideal ranges

Under the shortcut 'Ideal Ranges' you can define - for each parameter offered on your PrimeLab - which test-result-range you consider as 'OK', 'LOW' or 'HIGH'. Simply enter the min.- and max.-value to have your test results validated as OK/LOW/HIGH. With a tap on the search button, you can filter the parameters list.

If you set an ideal range, the PrimeLab 2.0 automatically saves this rule for the selected parameter. Therefore the comments OK/LOW/HIGH will be automatically added.

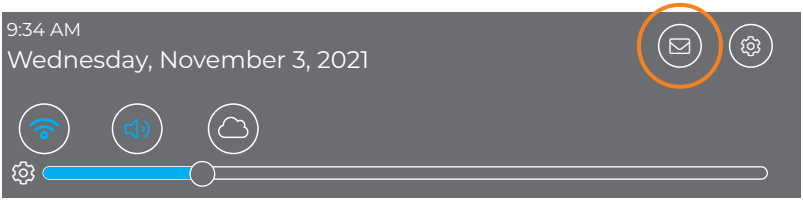
News

Keep yourself informed with news about your PrimeLab 2.0 ('Support' -> 'News'). By that, you will always be noted if, for example, new parameters and new features are available. This service is free of charge but requires the PrimeLab 2.0 to be connected to the internet.

If you do not wish to be informed about PrimeLab 2.0 news, here you have the option to deactivate the news-ticker.

You can access the newsfeed via:

- *The support icon in the main menu*
- *By dragging the status bar downwards and clicking on the letter icon in the top right-hand corner.*



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due to technical reasons

Sampling Points

Your PrimeLab 2.0 makes testing and managing data comfortable and easy!

One of the main features of your PrimeLab 2.0 is that you are able to connect test results to sampling points. By that, you always keep track of your test results in conjunction with the sampling point that was tested. PrimeLab 2.0 offers you to create an almost unlimited number of such individual sampling points. The 'Sampling Point' menu allows you to add, edit, delete and search sampling points.

Available for you soon: You can also create and print QR-codes for individual sampling points, to be used with the PrimeLab 2.0 camera/QR-code scanner. Furthermore, here you can find all your test results, stored under the sampling points name for which the measurement was done.

Add sampling points

To add a sampling point, tap on the 3-bar menu (upper right corner) and click on "Sampling Point".
• Each sampling point is structured in 3 different parts: Details, Name and Identifier. Fill in the sampling point-fields and tap on the save button. You can change the field names under 'General Settings', 'Data Scheme' to make them match your data structure.

Edit sampling points

To edit an existing sampling point, swipe the sampling points name to the right, followed by a tap on the edit button.

Delete sampling points

PrimeLab 2.0 offers you several options to delete a sampling point:
• Tap-hold a sampling point until its background changes (darker). Tap on other sampling points you want to delete as well, if wished. Tap on the 3-bar menu button and select 'Delete selected sampling points' or simply click on the delete button which appears on the lower end of the screen, once a sampling point got marked.
• Swipe a sampling point to the left, followed by a tap on the delete-symbol.

Search sampling points

To search for a sampling point, simply click on the search button on the tool bar or tap the 3-bar menu, followed by tapping on 'Search'. A search field and the keyboard appears. You can search for full phrases or just fractions of it.

QR-Codes (Available for you soon)

Your PrimeLab 2.0 has an in-built camera to scan QR-codes. As long as your database is connected to the LabCOM® cloud (see 'Cloud' menu), you will be able to generate and print QR-codes of each sampling point under www.labcom.cloud. Once created, printed and held available at the sampling point, all you need to do is to scan the QR-code to immediately launch a measurement procedure where this sampling point will be already pre-selected.

Continued...

Sampling Points

Measurement results

By tapping on a sampling points name, all saved measurements for this sampling point will be listed. You can then search, filter, delete, add manual test results, create dosage recommendations or directly initiate another measurement for this sampling point.

• Filter:
Either tap on the search button on the tool bar or tap on the 3-bar menu and select 'Filter'. A window with fields to filter, such as parameter, date etc. will appear.

• Delete: PrimeLab 2.0 offers you several options to delete measurements:
Tap-hold a measurement until its background changes (darker). Tap on other measurements you want to delete as well, if wished. Tap on the 3-bar menu button and select 'Delete selected measurements' or simply click on the delete button which appears on the lower end of the screen, once (a) measurement(s) got marked. Swipe a measurement to the left, followed by a tap on the delete-symbol.

• Add measurement results manually:
To add measurements manually, e.g. temperature or results obtained with other devices, just tap on the 3-bar menu and select 'Add Measurement' followed by entering the required information into the fields offered.

(Continued) Measurement results

• Create dosage recommendations:
As long as you entered the water volume of this sampling point (when typing in the sampling point information) and as long as you listed matching chemicals under the 'Chemicals' menu, you can let the PrimeLab 2.0 calculate dosage recommendations for you to know exactly, how much of your individual chemicals have to be added to bring the tested water value to a desired one.
To start a dosage recommendation, just tap-hold the test result, tap the 3-bar menu button, followed by selecting 'Dosage Recommendation' from the menu.

By selecting ‚Dosage Recommendation' from the menu without marking (tap hold) a test result before, you will be able to individually create a dosage recommendation by entering a parameter and the start value.

• Start a new measurement:
By tapping on the 3-bar menu button, followed by a tap on 'New Measurement', PrimeLab 2.0 switches automatically to the measurement menu with this sampling point pre-selected as the sampling point to be tested.

Continued...

Sampling Points

Single Measurement

To view details of each measurement saved, simply tap on the test result to open a new window where all info, related to this measurement, will be displayed. Just swipe up to see more details.

To edit a saved measurement, just swipe the measurement result to the right, followed by tapping on the edit button. You can then tap in the fields shown and edit the information. Note that PrimeLab 2.0 will mark those manually edited test results as 'changed' and will provide a history of the changes made, also showing the original values. Fields to be edited are:

- *Measurement value*
- *Timestamp*
- *Operator*

Here you can also enter a free text as a comment, saved along with this measurement.

Print, export and report Measurement results

As long as your sampling points, test-results and individual chemistry is being synchronized by the cloud (see menu 'Cloud'), you will have access to all this data through the LabCOM® app, LabCOM® software and LabCOM® cloud, where you can manage all sampling points, view, edit, print, export (PDF and Excel) and report easily as well.

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due to technical reasons

QR-Scanner / Camera

Available for you soon!

The in-built camera of the PrimeLab 2.0 is designed to make your life easier by scanning QR-codes. So far, PrimeLab 2.0 offers three options to scan QR-codes:

- **Reagents**
- **Sampling points**
- **Activation codes**

Scanning Sampling Point

As PrimeLab 2.0 always saves test results in conjunction with a sampling point, the test process starts with selecting the sampling point for which you intend to perform the following measurement. As long as your database is connected to the LabCOM® cloud (see 'Cloud' menu), you will be able to generate and print QR-codes of each sampling point under www.labcom.cloud and have it ready near the water site, to scan it.

Once created, printed and held available at the sampling point, all you need to do is to scan the QR-code to immediately launch a measurement procedure where this sampling point will be already pre-selected. PrimeLab 2.0 offers two options to pre-select the sampling point to be measured, using the in-built camera:

- *Tap on the camera symbol on the main menu and scan the QR-code of the sampling point. The 'Test' menu will appear instantly, with the scanned sampling point pre-selected.*
- *Start a test procedure by tapping the 'Test' icon on main menu, then tap the camera symbol next to the sampling point field, followed by scanning the QR- code of the sampling point.*

Scanning Reagents

PrimeLab 2.0 offers two options to pre-select the test to be performed, using the in-built camera:

- *Tap on the camera symbol on the main menu and scan the QR-code of the reagent-pack in hand. PrimeLab then offers you a list of parameters matching the reagent scanned. Tap on the test method you wish to use. The 'Test' menu will appear instantly, with the test method pre-selected.*
- *Start a test procedure by tapping the 'Test' icon on main menu, then tap the camera symbol next to the test-methods field, followed by scanning the QR- code of the reagent-pack in hand. PrimeLab then offers you a list of parameters matching the reagent scanned. Tap on the test method you wish to use.*

Activating additional parameters

When your request for additional parameters for your PrimeLab 2.0 is approved, you will receive an Email which contains a QR-code. Just tap on the camera symbol on main-menu and scan this QR-code to activate the requested parameters.

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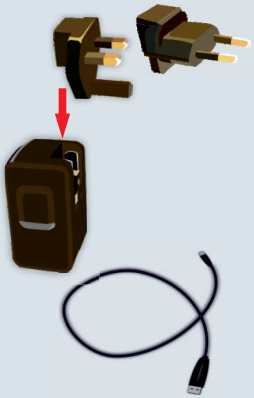
Connectivity:

PrimeLab 2.0 offers various connection options. Simply connect the associated parts to the USB (type C) port on the left side of the PrimeLab 2.0..



Charger/USB-cable

Charge the PrimeLab 2.0 in-built battery or connect the PrimeLab 2.0 to your computer, using the USB-cable given with your PrimeLab 2.0. If your battery is empty, the PrimeLab 2.0 needs at least 5min before it can be started with the cable connected. The power button always lights up red as soon as the charging cable is connected. Once the device is 100% charged, the power button no longer lights up.

When connecting the PrimeLab 2.0 to your computer via USB, you can choose to auto-install the LabCOM® software (Windows and Mac) and to synchronize all data from your PrimeLab 2.0 with the LabCOM® software. A more convenient way would be to link both, your PrimeLab 2.0 as well as your computer, to the LabCOM® cloud (see menu 'Cloud'), enabling real-time synchronization.

Available for you soon: USB type C to USB type A adapter

Some peripherals might have a USB type A plug (e.g. GSM-modem) which does not match the USB type C plug of your PrimeLab 2.0. In this case, just use the USB type C to USB type A adapter.

4G*

PrimeLab comes with an in-built Wi-Fi option. Nevertheless, there might be no Wi-Fi network available in field but still you want to have full connectivity and instant upload to the LabCOM® cloud. In such cases, just plug a GSM-modem with proper SIM card into the USB-slot of your PrimeLab. An internet connection will be established instantly (subject to network coverage).*

Hub

In some cases, the single USB type C connector on your PrimeLab 2.0 might not be enough. The PrimeLab USB-HUB expands the USB type C on the PrimeLab to 1x USB type C plus and 3x USB type A.

**via USB Internet Stick / accessories / may be subject to costs for connection*

ProbeBOX & electrodes

PrimeLab allows the connection of the Water-i.d. ProbeBOX via USB. Electrodes can then also be connected via the ProbeBOX. This option was not yet available at the time of printing this user manual.

Parameter

Most probably, your PrimeLab 2.0 has been factory setup with just those parameters you ordered / need. Nevertheless, your PrimeLab 2.0 always offers you the latest list of all parameters developed which can be activated at any time. The 'Parameters' menu allows you to:

• Obtain information about the water-parameter itself, including information about the needed reagents.

• Check which parameters are activated on your PrimeLab 2.0.

• Request additional parameters to be activated on your device.

• Activate additional parameters on your PrimeLab 2.0.

Parameter dictionary

Click on the arrow on the right side of the parameter name to expand the window.
Interesting facts and information about this parameter will be displayed and a list of needed reagents will be shown as well.

Show activated parameters

Filter the parameters-list to show only such parameters which are activated on your device, by tapping the 3-bar menu button followed by a tap on 'Show only activated Parameters'. A new window will appear, showing you all parameters which are activated on your PrimeLab 2.0

Request parameter

You might want, at some point, activate additional parameters (test methods) on your PrimeLab. To activate additional parameters, you first have to request them (internet-connection necessary!):

• Tap on the 3-bar menu button
• Tap on the "Request parameter" button
• Select one or more parameters you want to activate from the list
• Enter your email-address in the designated field (auto-filled with your LabCOM® cloud email-address, if entered) and press 'Request'. Once the request has been successfully sent, you will receive a confirmation message on the PrimeLab 2.0 screen.

Activate Parameters

There are several options how to activate additional parameters:

• Automatically: If your PrimeLab 2.0 uses a working internet connection (e.g. Wi-Fi) and your request for additional parameters was approved, the activation of the requested parameters will happen automatically.

Available for you soon:
• Scanning a QR-code: When your request for additional parameters for your PrimeLab 2.0 was approved, you will receive an Email which contains a QR-code. Just tap on the camera symbol on main-menu and scan this QR-code to activate the requested parameters.
• Enter an activation code: When your request for additional parameters for your PrimeLab 2.0 was approved, you will receive an Email which contains a text-code next to the QR-code. Tap on the 3-bar menu button on the 'Parameters' menu followed by a tap on 'Activate parameter'. You then need to type in the code received, followed by tapping ,OK'

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PrimeLab 2.0 makes testing easy:

On your PrimeLab 2.0 5.5" colour HD-display you will receive step-by-step guidance through every test you are performing, plus animated clips showing graphically what needs to be done to successfully perform the measurement. Each test result will be saved to a sampling point in conjunction with the selected operator name, time-stamp and dilution factor, if chosen.

How to enter the TEST menu

Launch a test procedure by...:

• Tapping the "TEST" icon on the main menu (! Sampling point and parameter are pre-set with the ones from last measurement!)

• Tapping on "New Measurement" from the 'Sampling Point' menu (! The sampling point from where you initiate "New Measurement" will be pre-selected !)

Available for you soon:

• Scanning a reagent QR code (! Last sampling point used will be pre-set. Parameter to be tested can be selected from a dropdown menu, which shows suitable parameters according to the QR-code scanned !)

• Scanning a sampling point QR code (! Last parameter tested will be pre-set. Sampling point will be pre-set according to the QR code information !)

Perform a measurement

Once you entered the 'TEST' menu...

• Choose/change the sampling point for which the test shall be performed from the drop-down menu.

• Choose/change the parameter you want to test from the drop-down menu.

• Choose/change the dilution-factor if applicable. Not every parameter offers dilution.

• Choose/change the operator performing the test from the drop-down menu.

• Press "START" to start the measurement.

• Follow the instructions on the screen

After the result is displayed, you have the option to repeat the test. To do so, press the Repeat button.

Intelligent OTZ (One-Time-Zero)

Almost every test requires a ZERO measurement. The ZERO value determines the colour/turbidity of your water sample in order to eliminate any pre-colouration or turbidity. PrimeLab 2.0 stores the last ZERO value to be able to perform more than one test with the same undiluted water source (!) without having to repeat the ZERO measurement each time. Since some parameters use different ZERO methods, such as 10ml water sample or 5ml water sample plus 5ml deionised water, PrimeLab 2.0 recognises the ZERO type of each measurement and only offers OTZ if the following measurement matches the ZERO type of the last measurement taken.

Continued...

Please read the following instructions carefully because these must be strictly observed to ensure accurate measurements:

Before inserting the cuvette into the sampling chamber please ensure that the cuvette is absolutely dry and clean, that there is no soiling by fingerprints etc., so that the light ray transmitted by the device for testing is not refracted or blocked. It is best to wipe the outside of the cuvette with a soft, clean and dry cloth before inserting it.

The cuvette lid, the cuvette itself and the stirring rod (if used) must be clean, to ensure that the samples to be tested are not contaminated by dirt, residues or remaining reagents of a previous test.

Never clean cuvette, lid or stirring rod with a detergent as these will leave residues and could influence any subsequent tests.

It is best to always use the same cuvette for any single parameter and to mark the cuvette on the outside on the bottom with a waterproof marker accordingly for this particular parameter.

The cuvette must also be free of any scratches as these would divert the light ray transmitted during the test. Replace any scratched or damaged cuvettes with new ones.

Make sure that you use only photometer grade reagents (PL range and Photometer tablets). Using RAPID reagents will lead to incorrect results!

Check before each test-run that the reagents used have not exceeded their best before date.

Always keep the sampling chamber (behind the cuvette adapter) clean. On 4 sides of the chamber you will see small holes behind the transparent chamber. The LEDs and sensors are located behind these holes. All transparent parts in front of these must be dry and clean.
Any soiling must be cleaned properly.

Some reagents are classified as hazardous materials. These are identified as such on the packaging. In addition you can download safety datasheets for the reagents offered from https://msds.water-id.com.
Always adhere to the safety instructions on the packaging and in the safety specifications to prevent damages to yourself, the device and the environment.

NEVER touch reagents with your fingers, pour them directly from the container into the water sample!

Always close liquid- and powder reagent containers immediately after use.
Always ensure uniform drop sizes / powder-spoon-sizes are used.

Air bubbles on the inside of the cuvette wall will result in incorrect measurements!
If there are any bubbles, carefully shake/tap the cuvette to release these.

Always conduct baseline (zero) measurements with the same cuvette used for the subsequent test.
Always make sure that the triangular marking on the cuvette is aligned with the triangle on the front of the sampling chamber on the device. There are always small differences between cuvettes (tolerances due to production).

Continued...

Test

The device must be acclimatised to the ambient temperature. Great differences between the device temperature and that of the environment can lead to the formation of condensation obstructing the optical system, which in turn will lead to incorrect measurements.

The sampling chamber must be free from water or humidity, otherwise there will be the risk of damage to the electronics inside the device.

Please calibrate your PrimeLab on a regular basis (at least *once per month***) as described** *under 'Settings'* **to obtain the best possible measurement results.**

PrimeLab must remain on a flat surface while testing as otherwise the LED light will not pass correctly through the sample water, *leading* **to incorrect results.**

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due to technical reasons

Super OTZ

Intelligent OTZ (One-Time-Zero)

Almost every test requires a ZERO measurement.
To ensure a faster measurement process for repetitive measuring of sapmles (e.g. COD), there is now the option of Super OTZ (One Time ZERO).
With this function, a ZERO measurement is stored in the PrimeLab 2.0 and can be recalled for each measurement.
The ZERO value determines a color/turbidity of your water sample in order to eliminate any preliminary coloration or turbidity. PrimeLab 2.0 stores the last ZERO value to be able to perform more than one test with the same undiluted water source (!) without having to repeat the ZERO measurement each time. Since some parameters use different ZERO methods, such as 10ml water sample or 5ml water sample plus 5ml deionized water, PrimeLab 2.0 recognizes the ZERO type of each measurement and offers OTZ only if the following measurement matches the ZERO type of the last performed measurement.

Add Super OTZ

Tap on "Super OTZ" in the main menu to display all OTZs that already exist.
• Tap the hamburger menu in the top right corner.
• Tap on "Add OTZ".
• Select the parameter to which you want to assign the OTZ.
• Name your OTZ anything you want to identify it later.
• Tap "Start Super OTZ" to begin the ZERO measurement.
• Follow the on-screen instructions (to go to the next step tap the single arrow icon , to go directly to the ZERO measurement tap the double arrow icon.)

Delete Super OTZ

Tap on "Super OTZ" in the main menu to display all OTZs that already exist.
You have several options to delete an OTZ.
• Swipe the OTZ you want to delete to the left, and then tap the trash can icon.
• Tap and hold on the OTZ until it turns blue. By tapping on more OTZs, you can add them to the selection.
• Tap on "Delete selected" at the bottom left to delete the selected OTZs.
// Alternatively, tap on the hamburger menu and then on "Delete selected OTZ".

Search Super OTZ

Tap on "Super OTZ" in the main menu to display all OTZs that already exist.
You have several options to search for an OTZ.
• Tap on the magnifying glass icon in the upper right corner and enter the desired search term in the search field.
// Alternatively, tap on the hamburger menu and then on "Search" . Then enter the desired search term in the search field.
• You can search for whole phrases or just fractions of them.

Use Super OTZ in a measurement

To use the Super OTZ in a measurement, the parameter of the Super OTZ and the parameter of the measurement must be identical.
(To perform a measurement, see chapter "Test", page 41).

- *Follow the instructions on the screen until you are prompted to select the desired ZERO method.*
- *Select your previously created Super OTZ here.*
- *Tap on "Confirm".*
- *Continue your measurement by following the instructions on the screen.*

TEST/Parameter list/Measurement method

group/method	parameter	ID	range	unit	λ	switch	reagent
Active Oxygen							
01-Act-oxi-MPS-tab	Active Oxygen	01	0.0 - 40.0	mg/l (MPS)	535	ppm (MPS)	Tablet
Alkalinity							
05-Alkalinit-M-tab	Alkalinity-M	05	5 - 200	mg/l ($CaCO_3$)	610	ppm ($CaCO_3$) °dH °eH °fH mmol/l mval/l mg/l (HCO_3^-) ppm (HCO_3^-)	Tablet
06-Alkalinit-P-tab	Alkalinity-P	06	25 - 300	mg/l ($CaCO_3$)	535	ppm ($CaCO_3$) °dH °eH °fH mmol/l mval/l mg/l (HCO_3^-) ppm (HCO_3^-)	Tablet
121-Alka-M-HR-tab	Alkalinity-M HR	121	0 - 500	mg/l ($CaCO_3$)	610	ppm ($CaCO_3$) °dH °eH °fH mmol/l mval/l mg/l (HCO_3^-) ppm (HCO_3^-)	Tablet
193-Alkalinity-M-liq	Alkalinity-M	193	0 - 200	mg/l ($CaCO_3$)	610	ppm ($CaCO_3$) °dH °eH °fH mmol/l mval/l	Liquid
Aluminium							
04-Aluminium-tab	Aluminium	04	0.00 - 0.30	mg/l (Al)	535	ppm (Al)	Tablet
Ammonia							
02-Ammonia-LR-pow	Ammonia LR	02	0.00 - 1.00	mg/l (N)	680	ppm (N) mg/l (NH_4^+) ppm (NH_4^+) mg/l (NH_3) ppm (NH_3)	Powder Pack
155-AmmoniaHR-pre	Ammonia HR	155	1.0 - 50.0	mg/l (N)	680	ppm (N) mg/l (NH_4^+) ppm (NH_4^+) mg/l (NH_3) ppm (NH_3)	Reagent-Kit
Boron							
07-Boron-tab	Boron	07	0.00 - 2.00	mg/l (B)	435	ppm (B) mg/l (H_3BO_3) ppm (H_3BO_3)	Tablet

group/method	parameter	ID	range	unit	λ	switch	reagent
Bromine							
08-Bromine-tab	Bromine (in presence of chlorine)	08	0.00 - 18.00	mg/l (Br_2)	535	ppm (Br_2)	Tablet
63-Bromine-liq	Bromine (in absence of chlorine)	63	0.00 - 9.00	mg/l (fBr_2)	510	ppm (fBr_2)	Liquid
128-Bromine-pp	Bromine	128	0.00 - 18.00	mg/l (Br_2)	535	ppm (Br_2)	Powder Pack
Carbohydrazide							
71-Carbohydra-liq	Carbohydrazide	71	0.00 - 1.30	mg/l	560		Liquid
Chloride							
10-Chloride-tab	Chloride	10	0.5 - 25.0	mg/l (Cl^-)	610	ppm (Cl^-) mg/l (NaCl) ppm (NaCl)	Tablet
124-Chloride-liq	Chloride	124	0.0 - 100.0	mg/l (Cl^-)	510	ppm (Cl^-) mg/l (NaCl) ppm (NaCl)	Liquid
167-Chloride-in-MeOH	Chloride in MeOH	167	0.0 - 20.0	mg/l (Cl^-)	560	ppm (Cl^-) mg/l (NaCl) ppm (NaCl)	Liquid
Chlorine							
11-Chlorine-tab	Chlorine (free/ combined/total)	11	0.00 - 8.00	mg/l (fCl_2)	535	ppm (fCl_2)	Tablet
12-Chlorine-liq	Chlorine (free/ combined/total)	12	0.00 - 4.00	mg/l (fCl_2)	510	ppm (fCl_2)	Liquid
14-Chlorine-HR-PP	Chlorine HR (KI)	14	5 - 200	mg/l (Cl_2)	510	ppm (Cl_2)	Powder Pack
15-Chlorine-HR-liq	Chlorine HR	15	0 - 200	mg/l (Cl_2)	510	ppm (Cl_2)	Liquid
95-Chloramines-tab	Chloramines (Mono-/Di-)	95	0.00 - 8.00	mg/l (fCl)	535	ppm (fCl)	Tablet
108-Total-Oxid-liq	Total Oxidants	108	0.00 - 4.00	mg/l (tCl_2)	510	ppm (tCl_2)	Liquid
122-ChlorineMR-tab	Chlorine MR (free/ combined/total)	122	0.00 - 10.00	mg/l (fCl_2)	535	ppm (fCl_2)	Tablet
129-Chlorine-pp	Chlorine (free/ combined/total) powder	129	0.00 - 8.00	mg/l (fCl_2)	535	ppm (fCl_2)	Powder Pack
191-TRO	Total Residual Oxidizers	191	0.00 - 4.00	mg/l tCl_2	-	ppm tCl_2	Liquid
Chlorine Dioxide							
16-Chlorin-Dio-tab	Chlorine Dioxide (in absence of Chlorine)	16	0.00 - 15.00	mg/l (ClO_2)	535	ppm (ClO_2)	Tablet
64-Chlorin-Dio-liq	Chlorine Dioxide (in absence of chlorine)	64	0.00 - 7.60	mg/l (ClO_2)	510	ppm (ClO_2)	Liquid
130-Chl-Diox-pp	Chlorine Dioxide	130	0.00 - 15.00	mg/l (ClO_2)	535	ppm (ClO_2)	Liquid
Chlorite							
106-Chlorite-liq	Chlorite	106	0.00 - 8.00	mg/l (ClO_2^-)	510	ppm (ClO_2^-)	Liquid
Chromium							
94-chromium-tab	Chromium (hexavalent)	94	0.00 - 2.20	mg/l (Cr^{6+})	560	ppm (Cr^{6+}) mg/l (CrO_4^{2-}) ppm (CrO_4^{2-})	Tablet
103-Chromium-liq	Chromium (hexavalent)	103	0.00 - 1.00	mg/l (Cr^{6+})	-	ppm (Cr^{6+}) mg/l (CrO_4^{2-}) ppm (CrO_4^{2-})	Powder Can

group/method	parameter	ID	range	unit	λ	switch	reagent
COD							
17-COD-HR-pre	COD HR	17	0 - 15000	mg/l (O_2)	610	ppm (O_2)	Reagent-Kit
79-COD-LR-pre	COD LR	79	0 - 150	mg/l (O_2)	435	ppm (O_2)	Reagent-Kit
80-COD-MR-pre	COD MR	80	0 - 1500	mg/l (O_2)	610	ppm (O_2)	Reagent-Kit
Colour							
107-Colour (Hazen/ APHA)	Colour (apparent)	107	15 - 500	mg/l (Pt-Co)	460	ppm (Pt-Co)	-
Copper							
18-Copper-tab	Copper (free/ combinded/total)	18	0.00 - 5.00	mg/l (fCu)	560	ppm (fCu)	Tablet
19-Copper-pow	Copper	19	0.00 - 5.00	mg/l (fCu)	560	ppm (fCu)	Powder Can
Cyanide							
158-Cyanide-pow	Cyanide	158	0.01 - 0.50	mg/l (CN^-)	585		Reagent-Kit
Cyanuric Acid							
20-Cyanur-Acid-tab	Cyanuric Acid	20	0 - 160	mg/l (CYA)	610	ppm (CYA)	Tablet
DBNPA							
65-DBNPA-liq	DBNPA	65	0.00 - 13.00	mg/l (DBNPA)	-	ppm (DBNPA)	Liquid
82-DBNPA-tab	DBNPA	82	0.00 - 13.00	mg/l (DBNPA)	535	ppm (DBNPA)	Tablet
DEHA							
21-DEHA-liq	DEHA	21	20 - 1000	µg/l (DEHA)	560	ppb (DEHA)	Liquid
Dissolved Oxygen							
163-Dis.Oxygen	Dissolved Oxygen	163	0.0 - 10.0	mg/l (O_2)	510	ppm (O_2)	Liquid
Erythorbic Acid							
70-Erythorbic-Acid	Erythorbic Acid	70	0.00 - 3.50	mg/l (EA)	-	ppm (EA)	Liquid
Fluorescein							
113-Fluorescein-Ad	Fluorescein	113	0 - 500	µg/l ($C_{20}H_{12}O_5$)	535	ppb ($C_{20}H_{12}O_5$) ppb ($C_{20}H_{10}Na_2O_5$)	-
Fluoride							
180-Fluoride	Fluoride (in absence of chlorine)	180	0.00 - 2.00	mg/l (F^-)	-	ppm (F^-) ClassLow	Liquid
Hardness							
09-Hard-Cal-HR_tab	Hardness-Calcium HR	09	50 - 1000	mg/l ($CaCO_3$)	560	ppm ($CaCO_3$) °dH °eH °fH mmol/l mval/l	Tablet
56-Hard-tot-LR-tab	Hardness-total LR	56	2.0 - 50.0	mg/l ($CaCO_3$)	560	ppm ($CaCO_3$) °dH °eH °fH mmol/l mval/l mg/l (Ca) ppm (Ca)	Tablet
57-Hard-tot-HR-tab	Hardness-total HR	57	20 - 500	mg/l ($CaCO_3$)	560	ppm ($CaCO_3$) °dH °eH °fH mmol/l mval/l mg/l (Ca)	Tablet

group/method	parameter	ID	range	unit	λ	switch	reagent
						ppm (Ca)	
78-Hard-Cal-tab	Hardness-Calcium	78	0 - 500	mg/l ($CaCO_3$)	585	ppm ($CaCO_3$) °dH °eH °fH mmol/l mval/l	Tablet
148-Total-Hardness-liq	Hardness-total HR	148	0 - 500	mg/l ($CaCO_3$)	560	ppm ($CaCO_3$) °dH °eH °fH mmol/l mval/l	Liquid
166-Hard-Cal-liq	Calcium hardness	166	0 - 500	mg/l ($CaCO_3$)	610	ppm ($CaCO_3$) °dH °eH °fH mmol/l mval/l	Liquid
Hydrazine							
23-Hydrazine-liq	Hydrazine	23	0 - 600	µg/l (N_2H_4)	-	ppb (N_2H_4)	Liquid
Hydrocarbons							
160-Hydrocarbons	Hydrocarbons	160	0 - 1	NTU (Turb)	-		-
Hydrogen Peroxide							
24-Hydr-Per-LR-tab	Hydrogen Peroxide LR	24	0.00 - 3.80	mg/l (H_2O_2)	535	ppm (H_2O_2)	Tablet
25-Hydr-Per-HR-liq	Hydrogen Peroxide HR	25	0 - 200	mg/l (H_2O_2)	510	ppm (H_2O_2)	Liquid
66-Hydr-Per-LR-liq	Hydrogen Peroxide LR	66	0.00 - 1.90	mg/l (H_2O_2)	-	ppm (H_2O_2)	Liquid
162-HydrPer-HR-tab	Hydrogen Peroxide HR	162	0 - 200	mg/l (H_2O_2)	510	ppm (H_2O_2)	Tablet
173-Sanosil-liq	Sanosil Super25 Ag	173	0 - 400	mg/l (Sanosil)	510		Liquid
Hydroquinone							
26-Hydroquinon-liq	Hydroquinone	26	0.00 - 2.50	mg/l ($C_6H_6O_2$)	-		Liquid
Iodine							
27-Iodine-tab	Iodine	27	0.00 - 28.00	mg/l (I_2)	535	ppm (I_2)	Tablet
67-Iodine-liq	Iodine	67	0.00 - 14.00	mg/l (I_2)	-	ppm (I_2)	Liquid
Iron							
28-Iron-LR-tab	Iron LR	28	0.00 - 1.00	mg/l (Fe^{2+}/Fe^{3+})	560	ppm (Fe)	Tablet
29-Iron-MR-pow	Iron MR (dissolved)	29	0.0 - 10.0	mg/l (Fe^{2+}/Fe^{3+})	535	ppm (Fe^{2+}/Fe^{3+})	Powder Can
30-Iron-HR-liq	Iron HR (total)	30	0.0 - 20.0	mg/l (Fe^{2+}/Fe^{3+})	535	ppm (Fe^{2+}/Fe^{3+})	Liquid
127-Iron-MR-Fe-pow	Iron MR	127	0.0 - 10.0	mg/l (Fe^{2+})	535	ppm (Fe^{2+})	Powder Can
132-Iron-tot-LR-pp	Iron LR (total)	132	0.00 - 3.00	mg/l (Fe^{2+}/Fe^{3+})	510	ppm (Fe)	Powder Pack
199-Iron LR	Iron LR	199	0.00 - 1.00	mg/l (Fe^{2+}/Fe^{3+})	-	ppm (Fe^{2+}/Fe^{3+})	Tablet

group/method	parameter	ID	range	unit	λ	switch	reagent
Isothiazolinone							
88-Isothiazol-liq	Isothiazolinone	88	0.0 - 10.0	mg/l (C_3H_3NOS)	560	ppm (C_3H_3NOS)	Liquid
Legionella							
147-Legionella-liq (Countdown + Test)	Legionella (Countdown + Test)	147	60 - 1000000	cfu/test (Leg)	435		Reagent-Kit
147-Legionella-liq (ZERO + Test)	Legionella (ZERO + Test)	147	60 - 1000000	cfu/test (Leg)	435		Reagent-Kit
Magnesium							
93-Magnesium-tab	Magnesium	93	0 - 100	mg/l (Mg)	535	ppm (Mg) mg/l ($CaCO_3$) ppm ($CaCO_3$)	Tablet
Manganese							
31-Manganese-LR-tab	Manganese	31	0.20 - 5.00	mg/l (Mn)	510	ppm (Mn) mg/l (MnO_4^-) ppm (MnO_4^-) mg/l ($KMnO_4$) ppm ($KMnO_4$)	Powder Pack
161-Manganese-VLR	Manganese VLR	161	0.000 - 0.030	mg/l (Mn)	610	ppm (Mn) mg/l (MnO_4^-) ppm (MnO_4^-) mg/l ($KMnO_4$) ppm ($KMnO_4$)	Tablet
Methylethylketoxime							
69-Methylethyl-liq	Methylethylketoxime	69	0.00 - 4.10	mg/l (C_4H_9NO)	-		Liquid
Molybdate							
32-Molybdat-HR-tab	Molybdate	32	1.0 - 100.0	mg/l (MoO_4^{2-})	410	ppm (MoO_4^{2-}) mg/l (Mo) ppm (Mo) mg/l (Na_2MoO_4) ppm (Na_2MoO_4)	Tablet
33-Molybdat-HR-liq	Molybdate HR	33	5.0 - 200.0	mg/l (MoO_4^{2-})	410	ppm (MoO_4^{2-}) mg/l (Mo) ppm (Mo) mg/l (Na_2MoO_4) ppm (Na_2MoO_4)	Liquid
96-Molybd-LR-tab	Molybdat LR	96	0.0 - 15.0	mg/l (MoO_4^{2-})	435	ppm (MoO_4^{2-}) mg/l (Mo) ppm (Mo) mg/l (Na_2MoO_4) ppm (Na_2MoO_4)	Tablet
134-Molybd-HR-pp	Molybdate HR	134	0.0 - 40.0	mg/l (MoO_4^{2-})	410	ppm (MoO_4^{2-}) mg/l (Mo) ppm (Mo) mg/l (Na_2MoO_4) ppm (Na_2MoO_4)	Powder Pack
Nickel							
90-Nickel-HR-tab	Nickel HR	90	0.0 - 7.0	mg/l (Ni)	560	ppm (Ni)	Tablet
100-Nickel-HR-liq	Nickel HR	100	0.0 - 10.0	mg/l (Ni)	-	ppm (Ni)	Liquid
Nitrate							
34-Nitrate-pow	Nitrate	34	0.00 - 11.00	mg/l (N)	535	ppm (N) mg/l (NO_3^-) ppm (NO_3^-)	Powder Can
169-Nitrate-HR-pp	Nitrate HR	169	1 - 100	mg/l (NO_3^-)	535		Powder Pack
190-Nitrate-TT	Nitrate	190	1.0 - 30.0	mg/l (N)	-	ppm (N) mg/l (NH_4^+) ppm (NH_4^+) mg/l (NH_3) ppm (NH_3)	Prepared Vial

group/method	parameter	ID	range	unit	λ	switch	reagent
Nitrite							
35-Nitrite-LR-tab	Nitrite LR	35	0.00 - 0.50	mg/l (N)	535	ppm (N) mg/l ($NaNO_2$) ppm ($NaNO_2$) mg/l (NO_2^-) ppm (NO_2^-)	Powder Pack
36-Nitrite-HR-pow	Nitrite HR	36	5 - 200	mg/l ($NaNO_2$)	435	ppm ($NaNO_2$) mg/l (N) ppm (N) mg/l (NO_2^-) ppm (NO_2^-)	Powder Can
97-Nitrite-HR-tab	Nitrite HR	97	0 - 1500	mg/l ($NaNO_2$)	510	ppm ($NaNO_2$) mg/l (N) ppm (N) mg/l (NO_2^-) ppm (NO_2^-)	Tablet
101-Nitrite-HR-liq	Nitrite HR	101	0 - 3000	mg/l ($NaNO_2$)	435	ppm ($NaNO_2$) mg/l (N) ppm (N) mg/l (NO_2^-) ppm (NO_2^-)	Liquid
Nitrogen							
151-NitroTotLR-pre	Nitrogen-Total LR (only ZERO and TEST)	151	0.5 - 25.0	mg/l (N)	435	ppm (N) mg/l (NH_4^+) ppm (NH_4^+) mg/l (NH_3) ppm (NH_3)	Prepared Vial
152-NitroTotHR-pre	Nitrogen-Total HR (only ZERO and TEST)	152	5 - 150	mg/l (N)	435	ppm (N) mg/l (NH_4^+) ppm (NH_4^+) mg/l (NH_3) ppm (NH_3)	Powder Pack
Oil							
171-IronInOil-tab	Iron in Oil	171	20 - 450	mg/l (Fe^{2+})	-	ppm (Fe^{2+})	-
Ozone							
37-Ozone-tab	Ozone (in presence of chlorine)	37	0.00 - 5.40	mg/l (O_3)	535	ppm (O_3)	Tablet
92-Ozone-liq	Ozone (in presence of chlorine)	92	0.00 - 2.70	mg/l (O_3)	-	ppm (O_3)	Liquid
Peracetic Acid							
164-Peracetic-Acid-LR	Peracetic Acid LR	164	0.00 - 10.00	mg/l (PAA)	-		Tablet
165-Peracetic-Acid-HR	Peracetic Acid HR	165	0.0 - 300.0	mg/l (PAA)	-		Powder Pack
Permanganate							
159-PTT-tab	Permanganate Time Test	159	0 - 100	%T (PTT)	-		Liquid
pH							
38-pH-MR-tab	pH-value MR	38	6.40 - 8.40	(pH)	535		Tablet
39-pH-MR-liq	pH-value MR	39	6.40 - 8.40	(pH)	535		Liquid
40-pH-LR-tab	pH-value LR	40	5.20 - 6.80	(pH)	585		Tablet
41-pH-univ-tab	pH Universal	41	5.0 - 11.0	(pH Univ)	510 / 560 / 610		Tablet
42-pH-univ-liq	pH Universal	42	4.0 - 11.0	(pH Univ)	-		Liquid

group/method	parameter	ID	range	unit	λ	switch	reagent
Phenol							
98-Phenol-tab	Phenol	98	0.00 - 5.00	mg/l (C_6H_5OH)	510	ppm (C_6H_5OH)	Tablet
PHMB							
43-PHMB-tab	PHMB	43	2 - 60	mg/l (PHMB)	610	ppm (PHMB)	Tablet
Phosphate							
44-Phosphat-LR-tab	Phosphate (-ortho-) LR	44	0.00 - 4.00	mg/l (PO_4^{3-})	680	ppm (PO_4^{3-}) mg/l (P) ppm (P) mg/l (P_2O_5) ppm (P_2O_5)	Powder Pack
45-Phosphat-LR-liq	Phosphate (-ortho-) LR	45	0.00 - 4.00	mg/l (PO_4^{3-})	860	ppm (PO_4^{3-}) mg/l (P) ppm (P) mg/l (P_2O_5) ppm (P_2O_5)	Liquid
46-Phosphat-HR-tab	Phosphate (-ortho-) HR	46	0.0 - 80.0	mg/l (PO_4^{3-})	435	ppm (PO_4^{3-}) mg/l (P) ppm (P) mg/l (P_2O_5) ppm (P_2O_5)	Powder Pack
47-Phosphat-HR-liq	Phosphate (-ortho-) HR	47	0.0 - 100.0	mg/l (PO_4^{3-})	410	ppm (PO_4^{3-}) mg/l (P) ppm (P) mg/l (P_2O_5) ppm (P_2O_5)	Liquid
Phosphonate							
87-Phosphonate-liq	Phsphonate	87	0.0 - 20.0	mg/l (PO_4^{3-})	760	ppm (PO_4^{3-}) mg/l (PBTC) ppm (PBTC) mg/l (NTP) ppm (NTP) mg/l (HEDPA) ppm (HEDPA) mg/l (EDTMPA) ppm (EDTMPA) mg/l (HMDTMPA) ppm (HMDTMPA) mg/l (DETPMPA) ppm (DETPMPA) mg/l (HPA) ppm (HPA)	Powder Can
110-Phosphon-tab	Phosphonate	110	0.0 - 20.0	mg/l (PO_4^{3-})	-	ppm (PO_4^{3-}) mg/l (PBTC) ppm (PBTC) mg/l (NTP) ppm (NTP) mg/l (HEDPA) ppm (HEDPA) mg/l (EDTMPA) ppm (EDTMPA) mg/l (HMDTMPA) ppm (HMDTMPA) mg/l (DETPMPA) ppm (DETPMPA) mg/l (HPA) ppm (HPA)	Tablet
Phosphorus							
153-PsphrTotLR-tab	Phosphorus-total LR	153	0.00 - 2.60	mg/l (P)	680	ppm (P) mg/l (PO_4^{3-}) ppm (PO_4^{3-})	Powder Pack
154-PsphrTotHR-tab	Phosphorus-total HR	154	0.0 - 52.0	mg/l (P)	435	ppm (P) mg/l (PO_4^{3-}) ppm (PO_4^{3-})	Powder Pack

group/method	parameter	ID	range	unit	λ	switch	reagent
Polyacrylate							
85-Polyacryl-liq	Polyacrylate	85	1.0 - 30.0	mg/l (Polyac.)	435	ppm (Polyac.)	Liquid
Potassium							
48-Potassium-tab	Potassium	48	0.7 - 12.0	mg/l (K)	435	ppm (K)	Tablet
PTSA							
111-PTSA-Ad	PTSA	111	0 - 1000	µg/l (PTSA)	410	ppb (PTSA)	-
156-Watch-Ad	Watch Products	156	0 - 1000	µg/l (Watch)	-	ppb (Watch)	-
157-TraceR-Ad	TRACER	157	0 - 1000	µg/l (TraceR)	-	ppb (TraceR)	-
Silica							
49-Silica-LR-liq	Silica LR	49	0.00 - 5.00	mg/l (SiO_2)	610	ppm (SiO_2) mg/l (Si) ppm (Si)	Liquid
50-Silica-HR-pow	Silica HR	50	0 - 100	mg/l (SiO_2)	410	ppm (SiO_2) mg/l (Si) ppm (Si)	Powder Can
Sod.-Hypochlorite							
51-Sodium-Hypo-tab	Sodium Hypochlorite	51	0.2 - 40.0	% (NaOCl)	510		Powder Pack
68-Sodium-Hypo-liq	Sodium Hypochlorite	68	0.2 - 40.0	% (NaOCl)	-		Liquid
Sulphate							
54-Sulphate-tab	Sulphate	54	5 - 100	mg/l (SO_4^{2-})	435	ppm (SO_4^{2-})	Powder Pack
55-Sulphate-pow	Sulphate	55	5 - 100	mg/l (SO_4^{2-})	435	ppm (SO_4^{2-})	Powder Can
Sulphide							
52-Sulphide-tab	Sulphide	52	0.04 - 0.50	mg/l (S^{2-})	645	ppm (S^{2-}) mg/l (H_2S) ppm (H_2S)	Tablet
140-Sulphide-Ha	Sulphide	140	0.00 - 0.70	mg/l (S^{2-})	680	ppm (S^{2-}) mg/l (H_2S) ppm (H_2S)	Liquid
Sulphite							
53-Sulphite-LR-tab	Sulphite LR	53	0.0 - 5.0	mg/l (SO_3^{2-})	435	ppm (SO_3^{2-}) mg/l (Na_2SO_3) ppm (Na_2SO_3)	Tablet
105-Sulphite-HR-tab	Sulphite HR	105	0 - 300	mg/l (Na_2SO_3)	585	mg/l (SO_3^{2-}) ppm (SO_3^{2-}) ppm (Na_2SO_3)	Tablet
174-Sulphite-HR-liq	Sulphite HR	174	0 - 200	mg/l (SO_3^{2-})	585	ppm (SO_3^{2-}) mg/l (Na_2SO_3) ppm (Na_2SO_3)	Liquid
Suspended Solids							
81-Suspended-Sol	Suspended Solids	81	0 - 750	mg/l (TSS)	610	ppm (TSS)	-

group/method	parameter	ID	range	unit	λ	switch	reagent
Tannin							
91-Tannic-acid-liq	Tannic acid	91	0 - 200	mg/l (Tan. Ac.)	-	ppm (Tan. Ac.)	Liquid
TOC							
197-TOC LR	Total Organic Carbon LR	197	5 - 80	mg/l (TOC)	-	ppm (TOC)	Liquid
198-TOC HR	Total Organic Carbon HR	198	50 - 800	mg/l (TOC)	-	ppm (TOC)	Powder Can
Transmission							
170-Transmission	Transmission	170	0.0 - 100.0	% (Trnsm)	410 / 435 / 460 / 485 / 510 / 535 / 560 / 585 / 610 / 645 / 680 / 705		-
Turbidity							
59-Turbidity	Turbidity	59	20 - 1000	FAU (Turb)	610	FTU (Turb)	-
112-Turbidity-NTU	Turbidity-NTU	112	0.5 - 1000.0	NTU (Turb)	435 / 610	FTU (Turb) FNU (Turb)	-
Urea							
120-Urea-tab-liq	Urea	120	0.1 - 2.5	mg/l ($(NH_2)_2CO$)	680	ppm ($(NH_2)_2CO$)	Powder Pack
150-UreaHR-tab-liq	Urea HR	150	0.2 - 5.0	mg/l ($(NH_2)_2CO$)	680	ppm ($(NH_2)_2CO$)	Powder Pack
Zinc							
62-CoZinc-tab	Zinc (in absence of chlorine)	62	0.00 - 1.00	mg/l (Zn)	585	ppm (Zn)	Tablet

EMPTY
due to technical reasons

(01)

Tablet

Active Oxygen

0.0 - 40.0 mg/l (MPS)

Internal Name: 01-Act-oxi-MPS-tab

DPD N°4 Photometer (TbsPD4)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 DPD N°4 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to start a 02:00 minute(s) countdown.
14	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- The chemical to be identified with this test procedure is potassium monopersulfate(MPS).
- Make sure no active oxygen escapes while preparing the sample. The measurement must be performed directly after sampling.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- If the sample water contains further oxidizing agents, these will react like acive oxygen and contribute to the measurement result.

- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- If the sample water contains high concentrationvalues of active oxygen, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.

(05)

Tablet

Alkalinity-M

5 - 200 mg/l ($CaCO_3$)

Internal Name: 05-Alkalinit-M-tab

Alkalinity-M Photometer (TbsPTA)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Alkalinity-M Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to start a 00:25 minute(s) countdown.
14	After the lapse of a 00:25 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l HCO_3^-, °dH, °eH, °fH, mmol (KS4.3), mval.

(06)

Tablet

Alkalinity-P

25 - 300 mg/l ($CaCO_3$)

Internal Name: 06-Alkalinit-P-tab

Alkalinity-P Photometer (TbsPAP)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Alkalinity-P Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to start a 05:00 minute(s) countdown.
14	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): °dH, °eH, °fH, mmol (KS4.3), mval.

(121)

Tablet

Alkalinity-M HR

0 - 500 mg/l ($CaCO_3$)

Internal Name: 121-Alka-M-HR-tab

Alkalinity-M HR Photometer (TbsPTAHR)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Alkalinity-M HR Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to start a 01:00 minute(s) countdown.
14	After the lapse of a 01:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l HCO_3^-, °dH, °eH, °fH, mmol (KS4.3), mval.

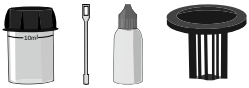
(193)

Liquid

Alkalinity-M

0 - 200 mg/l ($CaCO_3$)

Internal Name: 193-Alkalinity-M-liq



30ml PL Alka-M (PL30ALKM)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 6 drop(s) of PL Alkalinity M into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to perform the measurement.
12	The measured value is immediately displayed.

(04)

Tablet

Aluminium

0.00 - 0.30 mg/l (Al)

Internal Name: 04-Aluminium-tab

Aluminium N°1 Photometer (TbsHAlm1)
Aluminium N°2 Photometer (TbsPAlm2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Aluminium N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Add 1 Aluminium N°2 Photometer tablet(s) to the test water in the cuvette.
11	Crush the tablet with a clean stirring rod.
12	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 05:00 minute(s) countdown.
17	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The temperature of the water sample should be between 20 °C and 25 °C.
- Fluorides and polyphosphates will reduce the measurement result. As long as no fluorides have been added actively, this effect is negligible. Otherwise a result reduced by 0.01 - 0.23 mg/l is displayed. To take this effect into account, the fluoride content must be determined in a separate procedure. Multiply the separately measured fluoride value by 0.4 and add 1 to this result. The factor calculated in this way must be multiplied by the measurement result (aluminium) to obtain the actual value.Example: Determined fluoride value = 0.6 mg/l; multiplied by 0.4 = 0.24; plus 1 = 1.24 (= factor). Determined aluminium value = 0.15 mg/l; multiply by the above factor (1.24) = 0.19 mg/l aluminium concentration.

(02)

Powder Pack

Ammonia LR

0.00 - 1.00 mg/l (N)

Internal Name: 02-Ammonia-LR-pow

Ammonia N°1 Photometer (PPHAM1)
Ammonia N°2 Photometer (PPPAM2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Ammonia N°1 Photometer powder pillow to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	Add 1 Ammonia N°2 Photometer powder pillow to the sample water in the cuvette.
10	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to start a 10:00 minute(s) countdown.
15	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- The temperature of the water sample should be between 20 °C and 25 °C.

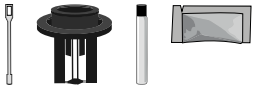
(155)

Reagent-Kit

Ammonia HR

1.0 - 50.0 mg/l (N)

Internal Name: 155-AmmoniaHR-pre



Ammonia HR Kit (PL155-Kit)

Measurement procedure:

1	Prepare 2 Ammonia HR cuvettes (16 mm). Label one as a ZERO cuvette.
2	Open the first cuvette (ZERO cuvette).
3	Fill 0.1 ml distilled water into the cuvette, using a pipette.
4	Open the second vial (sample vial).
5	Fill 0.1 ml sample water in the cuvette.
6	Add 1 x Am. Salic. F5 powder pillow into both cuvettes.
7	Add 1 x Am. Cyan. F5 powder pillow into both cuvettes.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	The reagents should now react.
10	Tap TEST to start a 20:00 minute(s) countdown.
11	Place the 16 mm adapter in the photometer.
12	Place the ZERO cuvette in the photometer.
13	Put on the lightshield.
14	Start ZERO measurement.
15	Remove the cuvette again.
16	Insert the sample cuvette in the photometer.
17	Put on the lightshield.
18	Tap TEST to perform the measurement.

Notes:

- The test result can be converted into the following unit(s): mg/l NH_3, mg/l NH_4^+.
- Deviations up to 25 % can occur in the low measuring range (0 - 5 mg/l). If you intend to measure low levels of ammonia, use "ID02 - Ammonia LR".
- Adjust strong alkaline or acidic water samples to pH 7 by using 1 mol/l hydrochloric acid or 1 mol/l sodium hydroxide, respectively.
- In presence of chlorine, add one drop 0.1 mol/l sodium thiolufate per 0.3 mg/l Cl_2.

- In presence of iron, measure the iron content of the sample water and add iron standard solution of the same concentration to the ZERO vial instead of DI water (step 3).

(07)

Tablet

Boron

0.00 - 2.00 mg/l (B)

Internal Name: 07-Boron-tab

Boron N°1 Photometer (TbsHBo1)
Boron N°2 Photometer (TbsPBo2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 2 Boron N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Add 1 Boron N°2 Photometer tablet(s) to the test water in the cuvette.
11	Crush the tablet with a clean stirring rod.
12	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 20:00 minute(s) countdown.
17	After the lapse of a 20:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l H_3BO_3
- The pH value of the water sample should be between 6 and 7.
- The temperature of the sample water influences the measurement. Perform the test at 20 °C (+/- 1 °C).

(08) Bromine (in absence of Chlorine)

Tablet

0.00 - 18.00 mg/l (Br_2)

Internal Name: 08-Bromine-tab

DPD N°1 Photometer (TbsPD1)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 1 DPD N°1 Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Fill the cuvette to 10 ml with the sample water.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Tap TEST to perform the measurement.
14	The measured value is immediately displayed.

Notes:

- Make sure no bromine escapes while preparing the sample. The measurement must be performed directly after sampling.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Water samples with a high calcium content resp. a high conductivity will render the sample cloudy, which is detrimental to the measurement precision. In this case use "DPD N°1 High Calcium (HC)" reagents.
- If the sample water contains more than 40 mg/l bromine, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.

- If the sample water contains further oxidizing agents, these will react like bromine and contribute to the measurement result.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.

(08) Bromine (in presence of chlorine)

Tablet

0.00 - 18.00 mg/l (Br_2)

Internal Name: 08-Bromine-tab

DPD N°1 Photometer (TbsPD1)
Glycine (TbsHGC)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Glycine tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Empty the cuvette to a few drops.
11	Add 1 DPD N°1 Photometer tablet(s) to the test water in the cuvette.
12	Crush the tablet with a clean stirring rod.
13	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
14	Fill the cuvette with the rest of the poured out treated sample water from the first cuvette from step 10.
15	Screw the lid back on the cuvette.
16	Gently swirl the cuvette to mix the liquid well.
17	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
18	Tap TEST to start a 02:00 minute(s) countdown.
19	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- Make sure no bromine escapes while preparing the sample. The measurement must be performed directly after sampling.

- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Water samples with a high calcium content resp. a high conductivity will render the sample cloudy, which is detrimental to the measurement precision. In this case use "DPD N°1 High Calcium (HC)" reagents.
- If the sample water contains more than 40 mg/l bromine, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- If the sample water contains further oxidizing agents, these will react like bromine and contribute to the measurement result.

(63) Bromine (in absence of chlorine)

Liquid + Powder

0.00 - 9.00 mg/l (fBr_2)

Internal Name: 63-Bromine-liq

30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD 1 B (PL30DPD1B)
PL DPD Nitrite Powder (PLpow20DPDNitr)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 3 drop(s) of PL DPD 1 A into the cuvette.
9	Add 3 drop(s) of PL DPD 1 B into the cuvette.
10	Fill the cuvette to 10 ml with the sample water.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to perform the measurement.
15	The measured value for tBr_2 (total bromine) is immediately displayed.
16	If you require determination of ´combined´ and/or ´free´ bromine, please proceed with the following steps.
17	Remove the cuvette again.
18	Empty the cuvette.
19	Clean the cuvette.
20	Fill 10 ml sample water into a second clean 24 mm cuvette.
21	Add 1 x 0.05mL PL DPD Nitrite scoop(s) powder to the sample water in the cuvette.
22	Screw the lid back on the cuvette.
23	Gently swirl the cuvette to mix the liquid well.
24	Add 3 drops of PL DPD 1 A into a second clean 24 mm cuvette.
25	Add 3 drop(s) of PL DPD 1 B into the cuvette.
26	Fill the cuvette with 10 ml of the treated sample water from the first cuvette.

27 Screw the lid back on the cuvette.

28 Gently swirl the cuvette to mix the liquid well.

29 Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.

30 Tap TEST to perform the measurement.

31 The measured value for fBr_2 = free bromine; cBr_2 = combined bromine and tBr_2 = total bromine is immediately displayed.

Notes:

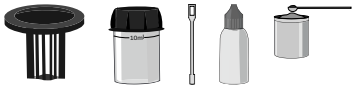
- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Water samples with a high calcium content resp. a high conductivity will render the sample cloudy, which is detrimental to the measurement precision. In this case use "DPD N°1 High Calcium (HC)" reagents.
- Make sure no bromine escapes while preparing the sample. The measurement must be performed directly after sampling.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- If the sample water contains more than 40 mg/l bromine, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- If the sample water contains further oxidizing agents, these will react like bromine and contribute to the measurement result.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(63) Bromine (in presence of chlorine)

Liquid + Powder

0.00 - 9.00 mg/l (fBr_2)

Internal Name: 63-Bromine-liq



30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD 1 B (PL30DPD1B)
PL DPD Nitrite Powder (PLpow20DPDNitr)
30ml PL DPD Glycine (PL30DPDGlycine)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 3 drop(s) of PL DPD Glycine into the cuvette.
8	Gently swirl the cuvette to mix the liquid well.
9	Add 3 drops of PL DPD 1 A and PL DPD 1 B into a second clean 24 mm cuvette.
10	Fill the cuvette with the treated sample of the first cuvette.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to perform the measurement.
15	The measured value for tBr_2 (total bromine) is immediately displayed.
16	If you require determination of ´combined´ and/or ´free´ bromine, please proceed with the following steps.
17	Fill 10 ml test water into a clean 24 mm cuvette.
18	Add 1 x 0.05 ml PL DPD Nitrite scoop(s) powder to the sample water in the cuvette.
19	Screw the lid back on the cuvette.
20	Gently swirl the cuvette to mix the liquid well.
21	Add 3 drops of PL DPD 1 A and PL DPD 1 B into a second clean 24 mm cuvette.
22	Fill the cuvette with 10 ml of the treated sample water from the first cuvette.
23	Screw the lid back on the cuvette.
24	Gently swirl the cuvette to mix the liquid well.
25	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
26	Tap TEST to perform the measurement.

27 The measured value for fBr_2 = free bromine; cBr_2 = combined bromine; tBr_2 = total bromine is immediately displayed.

Notes:

- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Water samples with a high calcium content resp. a high conductivity will render the sample cloudy, which is detrimental to the measurement precision. In this case use "DPD N°1 High Calcium (HC)" reagents.
- Make sure no bromine escapes while preparing the sample. The measurement must be performed directly after sampling.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- If the sample water contains more than 40 mg/l bromine, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- If the sample water contains further oxidizing agents, these will react like bromine and contribute to the measurement result.
- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(128)

Powder Pack

Bromine

0.00 - 18.00 mg/l (Br_2)

Internal Name: 128-Bromine-pp

DPD N°1 Photometer (PPPD1)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 DPD N°1 Photometer powder pillow to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to start a 03:00 minute(s) countdown.
13	After the lapse of a 03:00 minute(s) countdown the measured value is displayed.

Notes:

- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- Make sure no bromine escapes while preparing the sample. The measurement must be performed directly after sampling.
- If the sample water contains more than 40 mg/l bromine, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- If the sample water contains further oxidizing agents, these will react like bromine and contribute to the measurement result.

- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.

(71)

Liquid

Carbohydrazide

0.00 - 1.30 mg/l

Internal Name: 71-Carbohydra-liq

PL Oxygen Scavenger 1 (65 ml) (PL65OxyScav1)
PL Oxygen Scavenger 2 (65 ml) (PL65OxyScav2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 6 drop(s) of PL Oxygen Scavenger 1 into the cuvette.
8	Add 25 drop(s) of PL Oxygen Scavenger 2 into the cuvette.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(10)

Tablet

Chloride

0.5 - 25.0 mg/l (Cl^-)

Internal Name: 10-Chloride-tab

Chloride N°1 Photometer (TbsHCRD1)
Chloride N°2 Photometer (TbsPCRD2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Chloride N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Add 1 Chloride N°2 Photometer tablet(s) to the test water in the cuvette.
11	Crush the tablet with a clean stirring rod.
12	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 05:00 minute(s) countdown.
17	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l NaCl
- Avoid severe shaking of the water sample after adding the reagent, as this can lead to incorrect measurements.
- The reagent used will cause fine clouding.
- Other substances in the water that may react with silver nitrate in an acidic medium will lead to a falsification of the measurement result. Such species are bromide and iodine.
- Very alkaline water should be neutralized before the measurement by adding nitric acid.

(124)

Liquid

Chloride

0.0 - 100.0 mg/l (Cl^-)

Internal Name: 124-Chloride-liq

65ml PL Chloride N°1 (PL65Chloride1)
65ml PL Chloride N°2 (PL65Chloride2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 15 drop(s) of PL Chloride 1 into the cuvette.
8	Add 15 drop(s) of PL Chloride 2 into the cuvette.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l NaCl

(167)

Liquid

Chloride in MeOH

0.0 - 20.0 mg/l (Cl^-)

Internal Name: 167-Chloride-in-MeOH

30ml Chloride in Methanol (PL30CLMEOH)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 10 drop(s) of PL30CLMEOH into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Tap TEST to start a 15:00 minute(s) countdown.
11	Swivel the cuvette back and forth for 5 times.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to perform the measurement.
14	The measured value is immediately displayed.

Notes:

- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(11) Chlorine (free/combined/total)

Tablet

0.00 - 8.00 mg/l (fCl_2)

Internal Name: 11-Chlorine-tab

DPD N°1 Photometer (TbsPD1)
DPD N°1 High Calcium Photometer (TbsPD1HC)
DPD N°3 Photometer (TbsPD3)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 1 DPD N°1 Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
11	Fill the cuvette to 10 ml with the sample water.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to start a 00:10 minute(s) countdown.
16	After the lapse of a 10 second(s) countdown the measured value for fCl_2 (free chlorine) is displayed.
17	Unscrew the lid from the cuvette.
18	Add 1 DPD N°3 Photometer tablet(s) to the test water in the cuvette.
19	Crush the tablet with a clean stirring rod.
20	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
21	Screw the lid back on the cuvette.
22	Gently swirl the cuvette to mix the liquid well.
23	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
24	Tap TEST to start a 02:00 minute(s) countdown.
25	After the lapse of a 02:00 minute(s) countdown the total result is displayed, divided in fCl_2 = free chlorine; cCl_2 = combined chlorine; tCl_2 = total chlorine.

Notes:

- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- If the sample water contains further oxidizing agents, these will react like chlorine and contribute to the measurement result.
- Make sure no chlorine escapes while preparing the sample. The measurement must be performed directly after sampling.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- If the sample water contains more than 20 mg/l chlorine, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.

(12) Chlorine (free/combined/total)

Liquid

0.00 - 4.00 mg/l (fCl_2)

Internal Name: 12-Chlorine-liq

30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD 1 B (PL30DPD1B)
30ml PL DPD 3 C (PL30DPD3C)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette.
8	Add 3 drop(s) of "PL DPD 1 A" into the cuvette.
9	Add 3 drop(s) of "PL DPD 1 B" into the cuvette.
10	Fill the cuvette to 10 ml with the sample water.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to perform the measurement.
15	The measured value for "fCl_2" (free chlorine) is immediately displayed.
16	Remove the cuvette again.
17	Unscrew the lid from the cuvette.
18	Add 3 drop(s) of "PL DPD 3 C" into the cuvette.
19	Screw the lid back on the cuvette.
20	Gently swirl the cuvette to mix the liquid well.
21	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
22	Tap TEST to start a 02:00 minute(s) countdown.
23	After the lapse of a 02:00 minute(s) countdown the total result is displayed, divided in fCl_2 = free chlorine; cCl_2 = combined chlorine; tCl_2 = total chlorine.

Notes:

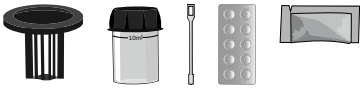
- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- Shake the liquid reagent thoroughly before adding the liquid to the vial.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- Make sure no chlorine escapes while preparing the sample. The measurement must be performed directly after sampling.
- If the sample water contains further oxidizing agents, these will react like chlorine and contribute to the measurement result.
- If the sample water contains more than 20 mg/l chlorine, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.

(14) Chlorine HR (KI)

Powder Pack

5 - 200 mg/l (Cl_2)

Internal Name: 14-Chlorine-HR-PP



Chlorine HR (KI) Photometer (PPPClHR)
Acidifying GP (PPHAFG)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Chlorine HR (KI) Photometer powder pillow to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	Add 1 Acidifying GP powder pillow to the sample water in the cuvette.
10	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to start a 00:20 minute(s) countdown.
16	After the lapse of a 00:20 minute(s) countdown the measured value is displayed.

Notes:

- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- If the sample water contains further oxidizing agents, these will react like chlorine and contribute to the measurement result.

(15)

Liquid

Chlorine HR

0 - 200 mg/l (Cl_2)

Internal Name: 15-Chlorine-HR-liq

65ml PL Chlorine HR N°1 (PL65ClHR1)
65ml PL Chlorine HR N°2 (PL65ClHR2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 3 drop(s) of PL Chlorine HR 1 into the cuvette.
8	Add 3 drop(s) of PL Chlorine HR 2 into the cuvette.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to start a 00:30 minute(s) countdown.
13	After the lapse of a 00:30 minute(s) countdown the measured value is displayed.

Notes:

- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- Shake the liquid reagent thoroughly before adding the liquid to the vial.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- If the sample water contains further oxidizing agents, these will react like chlorine and contribute to the measurement result.

(95) Chloramines (Mono-/Di-)

Tablet

0.00 - 8.00 mg/l (fCl)

Internal Name: 95-Chloramines-tab

DPD N°1 Photometer (TbsPD1)
DPD N°2 Photometer (TbsPD2)
DPD N°3 Photometer (TbsPD3)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 1 DPD N°1 Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Fill the cuvette to the 10 ml mark.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to start a 00:10 minute(s) countdown.
15	After the lapse of a 00:10 minute(s) countdown the measured value is displayed.
16	Unscrew the lid from the cuvette.
17	Add 1 DPD N°2 Photometer tablet(s) to the test water in the cuvette.
18	Crush the tablet with a clean stirring rod.
19	Screw the lid back on the cuvette.
20	Gently swirl the cuvette to mix the liquid well.
21	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
22	Tap TEST to perform the measurement.
23	After the lapse of a 10 second(s) countdown the measured value for NH_2Cl is displayed.
24	Unscrew the lid from the cuvette.
25	Add 1 DPD N°3 Photometer tablet(s) to the test water in the cuvette.
26	Crush the tablet with a clean stirring rod.

27 Screw the lid back on the cuvette.

28 Gently swirl the cuvette to mix the liquid well.

29 Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.

30 Tap TEST to perform the measurement.

31 After the lapse of a 120 second(s) countdown the measured value for fCl_2, NH_2Cl, $NHCl_2$ is displayed.

Notes:

- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(108)

Liquid

Total Oxidants

0.00 - 4.00 mg/l (tCl_2)

Internal Name: 108-Total-Oxid-liq

30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD 1 B (PL30DPD1B)
30ml PL DPD 3 C (PL30DPD3C)
30ml PL DPD Acidifying (PL30DPDAcidif)
30ml PL DPD Neutralising (PL30DPDNeutr)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 3 drop(s) of PL DPD 1 A into the cuvette.
9	Add 3 drop(s) of PL DPD 1 B into the cuvette.
10	Fill the cuvette to 10 ml with the sample water.
11	Add 3 drop(s) of PL DPD 3 C into the cuvette.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Tap TEST to perform the measurement.
15	Wait until the 02:00 minute(s) countdown ran out.
16	Unscrew the lid from the cuvette.
17	Add 3 drop(s) of PL DPD Acidifying into the cuvette.
18	Screw the lid back on the cuvette.
19	Gently swirl the cuvette to mix the liquid well.
20	Tap TEST to perform the measurement.
21	Wait until the 02:00 minute(s) countdown ran out.
22	Unscrew the lid from the cuvette.
23	Add 3 drop(s) of PL DPD Neutralising into the cuvette.
24	Screw the lid back on the cuvette.
25	Gently swirl the cuvette to mix the liquid well.
26	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.

27 Tap TEST to perform the measurement.

28 The measured value is immediately displayed.

Notes:

- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(122) Chlorine MR (free/combined/total)

Tablet

0.00 - 10.00 mg/l (fCl_2)

Internal Name: 122-ChlorineMR-tab

DPD N°1 MR Photometer (TbsPD1MR)
DPD N°3 MR Photometer (TbsPD3MR)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 1 DPD N°1 MR Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
11	Fill the cuvette to 10 ml with the sample water.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to perform the measurement.
16	After the lapse of a 00:10 minute(s) countdown the measured value is displayed.
17	Unscrew the lid from the cuvette.
18	Add 1 DPD N°3 MR Photometer tablet(s) to the test water in the cuvette.
19	Crush the tablet with a clean stirring rod.
20	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
21	Screw the lid back on the cuvette.
22	Gently swirl the cuvette to mix the liquid well.
23	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
24	Tap TEST to perform the measurement.
25	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- If the sample water contains more than 20 mg/l chlorine, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- If the sample water contains further oxidizing agents, these will react like chlorine and contribute to the measurement result.
- Make sure no chlorine escapes while preparing the sample. The measurement must be performed directly after sampling.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.

(129) Chlorine (free/combined/total) powder

Powder Pack

0.00 - 8.00 mg/l (fCl_2)

Internal Name: 129-Chlorine-pp

DPD N°1 Photometer (PPPD1)
DPD N°3 Photometer (PPPD3)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 DPD N°1 Photometer powder pillow to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	After the lapse of a 10 second(s) countdown the measured value for fCl_2 (free chlorine) is displayed.
14	Unscrew the lid from the cuvette.
15	Add 1 DPD N°3 Photometer powder pillow to the sample water in the cuvette.
16	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
17	Screw the lid back on the cuvette.
18	Gently swirl the cuvette to mix the liquid well.
19	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
20	Tap TEST to perform the measurement.
21	After the lapse of a 02:00 minute(s) countdown the total result is displayed, divided in fCl_2 = free chlorine; cCl_2 = combined chlorine; tCl_2 = total chlorine.

Notes:

- If the sample water contains more than 20 mg/l chlorine, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.

- If the sample water contains further oxidizing agents, these will react like chlorine and contribute to the measurement result.
- Make sure no chlorine escapes while preparing the sample. The measurement must be performed directly after sampling.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.

(191)

Liquid

Total Residual Oxidizers

0.00 - 4.00 mg/l tCl_2

Internal Name: 191-TRO

30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD 1 B (PL30DPD1B)
30ml PL DPD 3 C (PL30DPD3C)
30ml PL DPD Neutralising (PL30DPDNeutr)
30ml PL DPD Acidifying (PL30DPDAcidif)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 3 drop(s) of PL DPD 1 A into the cuvette.
9	Add 3 drop(s) of PL DPD 1 B into the cuvette.
10	Fill the cuvette to 10 ml with the sample water.
11	Add 3 drop(s) of PL DPD 3 C into the cuvette.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Tap TEST to perform the measurement.
15	Wait until the 02:00 minute(s) countdown ran out.
16	Unscrew the lid from the cuvette.
17	Add 3 drop(s) of PL DPD Acidifying into the cuvette.
18	Screw the lid back on the cuvette.
19	Gently swirl the cuvette to mix the liquid well.
20	Tap TEST to perform the measurement.
21	Wait until the 02:00 minute(s) countdown ran out.
22	Unscrew the lid from the cuvette.
23	Add 3 drop(s) of PL DPD Neutralising into the cuvette.
24	Screw the lid back on the cuvette.
25	Gently swirl the cuvette to mix the liquid well.
26	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.

27 Tap TEST to perform the measurement.

28 The measured value is immediately displayed.

(16) Chlorine Dioxide (in absence of Chlorine)

Tablet

0.00 - 15.00 mg/l (ClO_2)

Internal Name: 16-Chlorin-Dio-tab

DPD N°1 Photometer (TbsPD1)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 1 DPD N°1 Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Fill the cuvette to 10 ml with the sample water.
11	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
12	Screw the lid back on the cuvette.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to start a 00:10 minute(s) countdown.
15	After the lapse of a 00:10 minute(s) countdown the measured value is displayed.

Notes:

- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.

- Make sure no chlorine dioxide escapes while preparing the sample. The measurement must be performed directly after sampling.
- If the sample water contains further oxidizing agents, these will react like chlorine dioxide and contribute to the measurement result.
- If the sample water contains more than 30 mg/l chlorine dioxide, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.

(16) Chlorine Dioxide (in presence of chlorine)

Tablet

0.00 - 15.00 mg/l (ClO_2)

Internal Name: 16-Chlorin-Dio-tab

DPD N°1 Photometer (TbsPD1)
Glycine (TbsHGC)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Glycine tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Place 1 DPD N°1 Photometer tablet(s) into a second empty, clean cuvette.
11	Crush the tablet with a clean stirring rod.
12	Fill the cuvette with 10 ml of the treated sample water from the first cuvette.
13	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
14	Screw the lid back on the cuvette.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 00:10 minute(s) countdown.
17	After the lapse of a 00:10 minute(s) countdown the measured value is displayed.

Notes:

- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.

- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- Make sure no chlorine dioxide escapes while preparing the sample. The measurement must be performed directly after sampling.
- If the sample water contains further oxidizing agents, these will react like chlorine dioxide and contribute to the measurement result.
- If the sample water contains more than 30 mg/l chlorine dioxide, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.

(64) Chlorine Dioxide (in absence of chlorine)

Liquid

0.00 - 7.60 mg/l (ClO_2)

Internal Name: 64-Chlorin-Dio-liq

30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD 1 B (PL30DPD1B)
30ml PL DPD Glycine (PL30DPDGlycine)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 3 drop(s) of PL DPD 1 A into the cuvette.
9	Add 3 drop(s) of PL DPD 1 B into the cuvette.
10	Fill the cuvette to 10 ml with the sample water.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to perform the measurement.
15	The measured value is immediately displayed.

Notes:

- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.

- Make sure no chlorine dioxide escapes while preparing the sample. The measurement must be performed directly after sampling.
- If the sample water contains further oxidizing agents, these will react like chlorine dioxide and contribute to the measurement result.
- If the sample water contains more than 30 mg/l chlorine dioxide, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(64) Chlorine Dioxide (in presence of chlorine)

Liquid

0.00 - 7.60 mg/l (ClO_2)

Internal Name: 64-Chlorin-Dio-liq

30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD 1 B (PL30DPD1B)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 3 drop(s) of PL DPD Glycine into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Add 3 drop(s) of PL DPD 1 A into a second empty, clean cuvette.
11	Add 3 drop(s) of PL DPD 1 B into the cuvette.
12	Fill the cuvette with 10 ml of the treated sample water from the first cuvette.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to perform the measurement.
17	The measured value is immediately displayed.

Notes:

- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.

- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- Make sure no chlorine dioxide escapes while preparing the sample. The measurement must be performed directly after sampling.
- If the sample water contains further oxidizing agents, these will react like chlorine dioxide and contribute to the measurement result.
- If the sample water contains more than 30 mg/l chlorine dioxide, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Shake the liquid reagent thoroughly before adding the liquid to the vial.

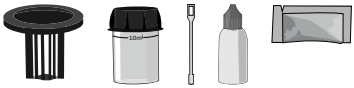
(130)

Liquid
+ Powder Pack

Chlorine Dioxide

0.00 - 15.00 mg/l (ClO_2)

Internal Name: 130-Chl-Diox-pp



30ml PL DPD Glycine (PL30DPDGlycine)
DPD N° 1 Photometer (PPPD150)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 4 drop(s) of PL DPD Glycine into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Add 1 DPD N°1 Photometer powder pillow to the sample water in the cuvette.
11	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to start a 02:00 minute(s) countdown.
16	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- If the sample water contains more than 30 mg/l chlorine dioxide, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- If the sample water contains further oxidizing agents, these will react like chlorine dioxide and contribute to the measurement result.
- Make sure no chlorine dioxide escapes while preparing the sample. The measurement must be performed directly after sampling.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.

- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.

(106)

Liquid

Chlorite

0.00 - 8.00 mg/l (ClO_2^-)

Internal Name: 106-Chlorite-liq

30ml PL DPD Glycine (PL30DPDGlycine)
30ml PL DPD 3 C (PL30DPD3C)
30ml PL DPD 1 B (PL30DPD1B)
30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD Acidifying (PL30DPDAcidif)
30ml PL DPD Neutralising (PL30DPDNeutr)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 3 drop(s) of PL DPD Glycine into the cuvette.
8	Screw the lid back on the cuvette.
9	Swivel the cuvette back and forth for 5 times.
10	Add 3 drop(s) of PL DPD 1 A into a second empty, clean cuvette.
11	Add 3 drop(s) of PL DPD 1 B into the cuvette.
12	Fill the cuvette with 10 ml of the treated sample water from the first cuvette.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to perform the measurement.
17	Remove the cuvette from the photometer and set it aside. It is no longer required for this test.
18	Add 3 drop(s) of PL DPD 1 A into a second empty, clean cuvette.
19	Add 3 drop(s) of PL DPD 1 B into the cuvette.
20	Then fill 10 ml of the sample water in the cuvette.
21	Add 10 drop(s) of PL DPD 3 C into the cuvette.
22	Screw the lid back on the cuvette.
23	Gently swirl the cuvette to mix the liquid well.
24	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
25	Tap TEST to start a 02:00 minute(s) countdown.
26	Wait until the 02:00 minute(s) countdown ran out.

27	Remove the cuvette again.
28	Unscrew the lid from the cuvette.
29	Add 3 drop(s) of PL DPD Acidifying into the cuvette.
30	Screw the lid back on the cuvette.
31	Gently swirl the cuvette to mix the liquid well.
32	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
33	Tap TEST to perform the measurement.
34	Wait until the 02:00 minute(s) countdown ran out.
35	Remove the cuvette again.
36	Unscrew the lid from the cuvette.
37	Add 3 drop(s) of PL DPD Neutralising into the cuvette.
38	Screw the lid back on the cuvette.
39	Gently swirl the cuvette to mix the liquid well.
40	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
41	Tap TEST to perform the measurement.
42	The measured value is immediately displayed.

Notes:

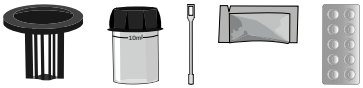
- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Shake the liquid reagent thoroughly before adding the liquid to the vial.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.

(94) Chromium (hexavalent)

Tablet + Powder Pack

0.00 - 2.20 mg/l (Cr^{6+})

Internal Name: 94-chromium-tab



Chromium N°1 Photometer (TbsHChro1)
Chromium N° 2 (PPHChro250)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Chromium N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Add 1 Chromium N°2 Photometer powder pillow to the sample water in the cuvette.
10	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to perform the measurement.
15	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l CrO_4^{2-}.

(103) Chromium (hexavalent)

Powder Can + Liquid

0.00 - 1.00 mg/l (Cr^{6+})

Internal Name: 103-Chromium-liq

PL Chromate 1 (PLpow40Chromate1)
PL Chromate 2 (PL65Chromate2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 1 x 0.05 ml PL Chromate 1 scoop(s) powder to the sample water in the cuvette.
9	Add 15 drop(s) of PL Chromate 2 into the cuvette.
10	Stir with the stirring rod for about 20 seconds.
11	Fill the cuvette to 10 ml with the sample water.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to start a 05:00 minute(s) countdown.
16	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l CrO_4^{2-}.

COD HR

0 - 15000 mg/l (O_2)

Internal Name: 17-COD-HR-pre

COD HR (tubetest) (COD-17-HR)

Measurement procedure:

1	Prepare 2 COD-HR cuvettes (16 mm). Label one as a ZERO cuvette.
2	Open the first cuvette (ZERO cuvette).
3	Fill 0.2 ml distilled water into the cuvette.
4	Open the second vial (sample vial).
5	Fill 0.2 ml sample water in the cuvette.
6	Screw the lid back on both cuvettes.
7	Gently swirl the cuvette to mix the liquid well. Caution, heat development!
8	Place cuvettes for 120 minutes at 150 °C in the preheated thermoreactor.
9	CAUTION: Cuvettes are hot!
10	Remove the cuvettes from the thermoreactor.
11	Let the cuvettes cool down to at least 60 °C.
12	Flip both 16 mm cuvettes to mix the liquid well.
13	Let the cuvettes cool down to room temperature.
14	Place the 16 mm adapter in the photometer.
15	Place the ZERO cuvette in the photometer.
16	Put on the lightshield.
17	Start ZERO measurement.
18	Remove the lightshield.
19	Remove the cuvette again.
20	Insert the sample cuvette in the photometer.
21	Put on the lightshield.
22	Tap TEST to perform the measurement.
23	The measured value is immediately displayed.

Notes:

- Suspended particles in the zero cell and / or the sample cell lead to wrong test results. Make sure that any existing suspended solids have settled to the bottom of the cell and are not disturbed by the insertion into the PrimeLab.
- Both cells used for the measurement (ZERO / sample) must be from the same production batch. The cell used for ZERO can be kept for other tests (of the same batch) but must be stored in the dark.
- For COD content below 1000 mg/l, the use of method COD MR is recommended, for COD content below 100 mg/l, the use of method COD LR is recommended to achieve accurate results.
- Never insert hot cells into the PrimeLab!
- This method is not suitable for water samples with chloride values > 10000 mg/l.

COD LR

0 - 150 mg/l (O_2)

Internal Name: 79-COD-LR-pre

COD LR (tubetest) (COD-79-LR)

Measurement procedure:

1	Prepare 2 COD-LR cuvettes (16 mm). Label one as a ZERO cuvette.
2	Open the first cuvette (ZERO cuvette).
3	Fill 2 ml distilled water into the cuvette.
4	Open the second vial (sample vial).
5	Fill 2 ml sample water in the cuvette.
6	Screw the lid back on both cuvettes.
7	Gently swirl the cuvette to mix the liquid well. Caution, heat development!
8	Place cuvettes for 120 minutes at 150 °C in the preheated thermoreactor.
9	CAUTION: Cuvettes are hot!
10	Remove the cuvettes from the thermoreactor.
11	Let the cuvettes cool down to at least 60 °C.
12	Flip both 16 mm cuvettes to mix the liquid well.
13	Let the cuvettes cool down to room temperature.
14	Place the 16 mm adapter in the photometer.
15	Place the ZERO cuvette in the photometer.
16	Put on the lightshield.
17	Start ZERO measurement.
18	Remove the lightshield.
19	Remove the cuvette again.
20	Insert the sample cuvette in the photometer.
21	Put on the lightshield.
22	Tap TEST to perform the measurement.
23	The measured value is immediately displayed.

Notes:

- Suspended particles in the zero cell and / or the sample cell lead to wrong test results. Make sure that any existing suspended solids have settled to the bottom of the cell and are not disturbed by the insertion into the PrimeLab.
- Both cells used for the measurement (ZERO / sample) must be from the same production batch. The cell used for ZERO can be kept for other tests (of the same batch) but must be stored in the dark.
- Never insert hot cells into the PrimeLab!
- This method is not suitable for water samples with chloride values higher than 1000 mg/l.
- For COD content above 150 mg/l, the use of another method (COD MR / COD HR) is recommended to achieve accurate results.

(80)

Reagent-Kit

COD MR

0 - 1500 mg/l (O_2)

Internal Name: 80-COD-MR-pre

COD MR (tubetest) (COD-80-MR)

Measurement procedure:

1	Prepare 2 COD-MR cuvettes (16 mm). Label one as a ZERO cuvette.
2	Open the first cuvette (ZERO cuvette).
3	Fill 2 ml distilled water into the cuvette.
4	Open the second vial (sample vial).
5	Fill 2 ml sample water in the cuvette.
6	Screw the lid back on both cuvettes.
7	Gently swirl the cuvette to mix the liquid well. Caution, heat development!
8	Place cuvettes for 120 minutes at 150 °C in the preheated thermoreactor.
9	CAUTION: Cuvettes are hot!
10	Remove the cuvettes from the thermoreactor.
11	Let the cuvettes cool down to at least 60 °C.
12	Flip both 16 mm cuvettes to mix the liquid well.
13	Let the cuvettes cool down to room temperature.
14	Place the 16 mm adapter in the photometer.
15	Place the ZERO cuvette in the photometer.
16	Put on the lightshield.
17	Start ZERO measurement.
18	Remove the lightshield.
19	Remove the cuvette again.
20	Insert the sample cuvette in the photometer.
21	Put on the lightshield.
22	Tap TEST to perform the measurement.
23	The measured value is immediately displayed.

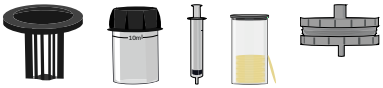
Notes:

- Suspended particles in the zero cell and / or the sample cell lead to wrong test results. Make sure that any existing suspended solids have settled to the bottom of the cell and are not disturbed by the insertion into the PrimeLab.
- Both cells used for the measurement (ZERO / sample) must be from the same production batch. The cell used for ZERO can be kept for other tests (of the same batch) but must be stored in the dark.
- For COD content above 1500 mg/l, the use of another method (COD HR) is recommended to achieve accurate results.
- Never insert hot cells into the PrimeLab!
- This method is not suitable for water samples with chloride values higher than 1000 mg/l.

(107) Colour (apparent)

15 - 500 mg/l (Pt-Co)

Internal Name: 107-Colour (Hazen/APHA)



Measurement procedure:

1	Fill 10 ml distilled water in a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette.
8	Rinse the cuvette with the test water.
9	Fill the cuvette to the 10 ml mark.
10	Screw the lid back on the cuvette.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	The measured value for mg/l (Pt-Co) is immediately displayed.

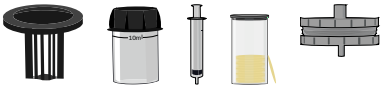
Notes:

- Special accessories required / not included as standard equipment!
- The sample water needs to have a yelowish to yellowish-brown coloration to be tested with this method. The method is based on the "HAZAN Standard", developed by A. Hazen (EN ISO 7887:1994).
- Analyse as soon as possible after taking the sample. Use clean glass or plastic containers for transport and avoid air contact of the sample water. Do not stir sample water. Store sample for max. 24 hours in a dark place at 4 °C.
- Test to be performed with sample water having room temperature.
- The estimated detection limit is 15 units Pt-Co.
- Use the same vial for ZERO and TEST.

(107) Colour (true)

15 - 500 mg/l (Pt-Co)

Internal Name: 107-Colour (Hazen/APHA)



Measurement procedure:

1	Separate the two halves of the filter holder.
2	Insert a 0.45 µm filter. Screw the filter holder back together, making sure that the O-ring is correctly seated.
3	Fill the syringe again with distilled water.
4	Connect the syringe to the filter holder.
5	Empty the syringe with the filter completely.
6	Remove the filter syringe from the filter holder.
7	Repeat step 3 - 6 several times.
8	Fill syringe again with 20 ml distilled water.
9	Connect the syringe to the filter holder.
10	Empty the syringe with the filter up to the 10 ml mark.
11	Fill the remaining 10 ml filtered sample water into a clean 24 mm cuvette.
12	Screw the lid back on the cuvette.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Start ZERO measurement.
15	Remove the cuvette again.
16	Remove the filter syringe from the filter holder.
17	Fill the syringe with the sample water.
18	Connect the syringe to the filter holder.
19	Empty the syringe with the filter completely.
20	Repeat step 16 - 19 several times.
21	Fill the syringe with the sample water.
22	Empty the syringe with the filter up to the 10 ml mark.
23	Fill the remaining 10 ml filtered sample water into a clean 24 mm cuvette.
24	Screw the lid back on the cuvette.
25	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
26	Tap TEST to perform the measurement.

27 The measured value for mg/l (Pt-Co) is immediately displayed.

Notes:

- Special accessories required / not included as standard equipment!
- The sample water needs to have a yelowish to yellowish-brown coloration to be tested with this method. The method is based on the "HAZAN Standard", developed by A. Hazen (EN ISO 7887:1994).
- Analyse as soon as possible after taking the sample. Use clean glass or plastic containers for transport and avoid air contact of the sample water. Do not stir sample water. Store sample for max. 24 hours in a dark place at 4 °C.
- Test to be performed with sample water having room temperature.
- The estimated detection limit is 15 units Pt-Co.
- Use the same vial for ZERO and TEST.

(18) Copper (free/combinded/total)

Tablet

0.00 - 5.00 mg/l (fCu)

Internal Name: 18-Copper-tab

Copper N°1 Photometer (TbsHCu1)
Copper N°2 Photometer (TbsPCu2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Copper N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	The measured value for fCu (free copper) is immediately displayed.
14	Remove the cuvette again.
15	Unscrew the lid from the cuvette.
16	Add 1 Copper N°2 Photometer tablet(s) to the test water in the cuvette.
17	Crush the tablet with a clean stirring rod.
18	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
19	Screw the lid back on the cuvette.
20	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
21	Tap TEST to perform the measurement.
21	The measured value for fCu = "free copper“ ; cCu = "combined copper“ ; tCu"= "total copper" is immediately displayed.

Notes:

- For the analysis of total copper the following procedure is necessary:i) Add concentrated sulfuric acid to the test sample (1 ml per 100 ml of test sample). By boiling it for 10 minutes, everything is dissolved. Now cool down the test sample. Then add ammonia and bring the sample to a pH value of 3 – 5. The initial volume of 100 ml of fluid has to be filled up with deionized water. The analysis can now be performed as described with 10 ml of the liquid obtained.ii) With organic compounds pretreated water may need to be oxidized (destruction of the copper complexes). Add concentrated sulfuric acid and concentrated nitric acid to the test sample (1 ml per 100ml each). Now cool the test sample. The analysis can now be performed as described.
- For the analysis the water has to have a pH value of 4 - 6. Strongly acidic water having a pH value of <2 should be neutralized with 8 mol/l potassium hydroxide.
- Not yet completely dissolved powder has no effect on the accuracy of the measurement.
- Disorders: i) Cyanides (CN^-): To ensure full color development, the test sample has to be enriched with 0.2 ml of formaldehyde and wait 4 minutes. The analysis can now be performed as described. The test result must be multiplied by 1.02.ii) Silver (Ag^+): Silver can cause blackening of the test sample. Add saturated potassium chloride solution (10 drops per 75 ml). Then the test sample had to be poured through a fine filter. The analysis is now carried out as described with 10 ml of the filtered liquid.

(19)

Powder Can

Copper

0.00 - 5.00 mg/l (fCu)

Internal Name: 19-Copper-pow

20g PL Copper N°1 (PLpow20Cu1)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 2 0.05 ml PL Copper 1 scoop(s) powder to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	Screw the lid back on the cuvette.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to start a 02:00 minute(s) countdown.
12	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- For the analysis of total copper the following procedure is necessary:i) Add concentrated sulfuric acid to the test sample (1 ml per 100 ml of test sample). By boiling it for 10 minutes, everything is dissolved. Now cool down the test sample. Then add ammonia and bring the sample to a pH value of 3 – 5. The initial volume of 100 ml of fluid has to be filled up with deionized water. The analysis can now be performed as described with 10 ml of the liquid obtained.ii) With organic compounds pretreated water may need to be oxidized (destruction of the copper complexes). Add concentrated sulfuric acid and concentrated nitric acid to the test sample (1 ml per 100ml each). Now cool the test sample. The analysis can now be performed as described.
- For the analysis the water has to have a pH value of 4 - 6. Strongly acidic water having a pH value of <2 should be neutralized with 8 mol/l potassium hydroxide.
- Not yet completely dissolved powder has no effect on the accuracy of the measurement.

- Disorders: i) Cyanides (CN^-): To ensure full color development, the test sample has to be enriched with 0.2 ml of formaldehyde and wait 4 minutes. The analysis can now be performed as described. The test result must be multiplied by 1.02.ii) Silver (Ag^+): Silver can cause blackening of the test sample. Add saturated potassium chloride solution (10 drops per 75 ml). Then the test sample had to be poured through a fine filter. The analysis is now carried out as described with 10 ml of the filtered liquid.

(158)

Reagent-Kit

Cyanide

0.01 - 0.50 mg/l (CN^-)

Internal Name: 158-Cyanide-pow

Cyanide Kit (PL158-Kit)

Measurement procedure:

1	Fill 8 ml of distilled water into a clean 24 mm cuvette.
2	Add exactly 2 ml sample water to the same cuvette.
3	Screw the lid back on the cuvette.
4	Swivel the cuvette back and forth for 5 times.
5	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
6	Start ZERO measurement.
7	Remove the cuvette again.
8	Unscrew the lid from the cuvette.
9	Add 2 spoons of PL Cyanide-11 (powder) to the sample water in the cuvette.
10	Screw the lid back on the cuvette.
11	Swivel the cuvette back and forth for 5 times.
12	Add 2 spoons of PL Cyanide-12 (powder) to the sample water in the cuvette.
13	Screw the lid back on the cuvette.
14	Swivel the cuvette back and forth for 5 times.
15	Add 3 drop(s) of PL Cyanide-13 into the cuvette.
16	Screw the lid back on the cuvette.
17	Gently swirl the cuvette to mix the liquid well.
18	Tap TEST to perform the measurement.
19	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- Reagents should be stored at temperatures of 15 °C to 25 °C.
- This method only detects free cyanides and cyanides which can be destroyed by chlorine.
- Cyanide must be separated (distillation) before performing the test in case thiocyanate, colorants, heavy metal complexes or aromatic amines are present.

(20)

Tablet

Cyanuric Acid

0 - 160 mg/l (CYA)

Internal Name: 20-Cyanur-Acid-tab

CYA Photometer (TbsPCAT)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 CYA-Test Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Swirl the cuvette for 01:00 minute(s).
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to perform the measurement.
14	The measured value is immediately displayed.

Notes:

- If a result > 100 mg/l is expected, a more precise measurement can be achieved by dilution.

(65)

Liquid

DBNPA

0.00 - 13.00 mg/l (DBNPA)

Internal Name: 65-DBNPA-liq

30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD 1 B (PL30DPD1B)
30ml PL DPD 3 C (PL30DPD3C)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 3 drop(s) of PL DPD 1 A into the cuvette.
9	Add 3 drop(s) of PL DPD 1 B into the cuvette.
10	Fill the cuvette to 10 ml with the sample water.
11	Add 3 drop(s) of PL DPD 3 C into the cuvette.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to perform the measurement.
16	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.

- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(82)

Tablet

DBNPA

0.00 - 13.00 mg/l (DBNPA)

Internal Name: 82-DBNPA-tab

DPD N°1 Photometer (TbsPD1)
DPD N°3 Photometer (TbsPD3)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 1 DPD N°1 Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Fill the cuvette to 10 ml with the sample water.
11	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
12	Add 1 DPD N°3 Photometer tablet(s) to the test water in the cuvette.
13	Crush the tablet with a clean stirring rod.
14	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
15	Screw the lid back on the cuvette.
16	Gently swirl the cuvette to mix the liquid well.
17	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
18	Tap TEST to perform the measurement.
19	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.

(21)

Liquid

DEHA

20 - 1000 µg/l (DEHA)

Internal Name: 21-DEHA-liq

PL Oxygen Scavenger 1 (30 ml) (PL30OxyScav1)
PL Oxygen Scavenger 2 (65 ml) (PL65OxyScav2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 6 drop(s) of PL Oxygen Scavenger 1 into the cuvette.
8	Gently swirl the cuvette to mix the liquid well.
9	Add 25 drop(s) of PL Oxygen Scavenger 2 into the cuvette.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to start a 10:00 minute(s) countdown.
14	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- Ferrous sample water will interfere with this test and can influence the readings. To determine the ferrous iron concentration for correction purposes, repeat the test without adding PL Oxygen Scavenger N°1. If the result is above 0.05 mg/l, subtract this value from the DEHA result.
- During the reaction time, ensure the sample is kept in the dark.
- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(163)

Liquid

Dissolved Oxygen

0.0 - 10.0 mg/l (O_2)

Internal Name: 163-Dis.Oxygen

30ml PL Dissolved Oxygen N°1 (PL30DO1)
30ml PL Dissolved Oxygen N°2 (PL30DO2)
30ml PL Dissolved Oxygen N°3 (PL30DO3)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette.
8	Clean the cuvette.
9	Clean the lid as well.
10	Fill a 50 ml glass bottle brimful with the water to be measured.
11	Place the stopper on the glass bottle. Caution, excess water runs out!
12	Remove the stopper again.
13	Add 10 drop(s) of PL DissOx 1 to the glass bottle.
14	Put the stopper back on.
15	Swivel/shake glass bottle for 01:00 minute(s)
16	Tap TEST to start a 01:00 minute(s) countdown.
17	Remove the stopper again.
18	Add 10 drop(s) of PL DissOx 2 to the glass bottle.
19	Put the stopper back on.
20	Swivel/shake glass bottle for 01:00 minute(s)
21	Tap TEST to start a 01:00 minute(s) countdown.
22	Remove the stopper again.
23	Add 10 drop(s) of PL DissOx 3 to the glass bottle.
24	Put the stopper back on.
25	Swivel/shake glass bottle for 01:00 minute(s)
26	Tap TEST to start a 01:00 minute(s) countdown.

27 Add 10 ml of solution into the previously used ZERO cuvette.

28 Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.

29 Tap TEST to perform the measurement.

30 The measured value is immediately displayed.

Notes:

- Make sure the 50 ml glass bottle is really filled up to the top and the water will run out when applying the stopper.

(70)

Liquid

Erythorbic Acid

0.00 - 3.50 mg/l (EA)

Internal Name: 70-Erythorbic-Acid

PL Oxygen Scavenger 1 (65 ml) (PL65OxyScav1)
PL Oxygen Scavenger 2 (65 ml) (PL65OxyScav2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 6 drop(s) of PL Oxygen Scavenger 1 into the cuvette.
8	Add 25 drop(s) of PL Oxygen Scavenger 2 into the cuvette.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Tap TEST to perform the measurement.
12	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

(113)

Fluorescein

0 - 500 µg/l ($C_{20}H_{12}O_5$)

Internal Name: 113-Fluorescein-Ad

Measurement procedure:

1	Fill 10 ml distilled water in a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette.
8	Rinse the cuvette with the test water.
9	Fill 10 ml test water into a clean 24 mm cuvette.
10	Screw the lid back on the cuvette.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	The measured value is immediately displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l $C_{20}H_{12}O_5$.
- Ensure that all parts are clean, dry and free of grease and the adapter must be placed firmly until it stops.
- One of the following reasons might cause faulty readings: i) Cuvette adapter is not seated correctly, ii) Water sample might be too dark / not enough light can pass sample to reach the sensor.

(180) Fluoride (in absence of chlorine)

Liquid

0.00 - 2.00 mg/l (F^-)

Internal Name: 180-Fluoride

PL SPADNS Fluoride Reagent (PL100SPADNSF)

Measurement procedure:

1	Fill 10 ml distilled water in a clean 24 mm cuvette.
2	Add 2 ml of PL SPADNS Fluoride Reagent to the cuvette.
3	Screw the lid back on the cuvette.
4	Gently swirl the cuvette to mix the liquid well.
5	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
6	Start ZERO measurement.
7	Remove the cuvette again.
8	Empty the cuvette.
9	Clean and dry the cuvette and lid carefully.
10	Fill 10 ml sample water in the same cuvette.
11	Add 2 ml of PL SPADNS Fluoride Reagent to the cuvette.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to perform the measurement.
16	The measured value is immediately displayed.

Notes:

- Distilled water and sample water must be at the same temperature (± 1 °C).
- The reagent must be dosed precisely. The use of a volumetric pipet is recommended.
- ZERO and sample must be measured with the same batch of reagent.
- ZERO and sample measurement must be performed in the same cuvette.
- Turbid and coloured sample water must be distilled prior to the test.
- Chlorine levels > 5 mg/l will interfere.

(09)

Tablet

Hardness-Calcium HR

50 - 1000 mg/l ($CaCO_3$)

Internal Name: 09-Hard-Cal-HR_tab

Calcium Hardness Photometer (TbsPCH)

Measurement procedure:

1	Fill 10 ml distilled water into the cuvette.
2	Add 1 Calcium Hardness Photometer tablet(s) to the test water in the cuvette.
3	Crush the tablet with a clean stirring rod.
4	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
5	Screw the lid back on the cuvette.
6	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
7	Wait for 02:00 minute(s).
8	Start ZERO measurement.
9	Remove the cuvette again.
10	Unscrew the lid from the cuvette.
11	Add exactly 2 ml sample water to the same cuvette.
12	Screw the lid back on the cuvette.
13	Swivel the cuvette back and forth for 5 times.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to perform the measurement.
16	The measured value is immediately displayed.

Notes:

- The test result can be converted into the following unit(s): °dH, °eH, °fH.
- If your reading is towards the upper limit of the test a dilution is recommended.
- Deviations within different tablets might lead to different ZERO values. For this reason, the function One-Time-Zero is not included.
- Highly alkaline or acidic samples should be adjusted to pH 4 to 10 by adding 1 mol/l acetic acid or1 mol/l caustic soda, respectively.

(56)

Tablet

Hardness-total LR

2.0 - 50.0 mg/l ($CaCO_3$)

Internal Name: 56-Hard-tot-LR-tab

Total Hardness Photometer (TbsPTH)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Total Hardness Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Tap TEST to perform the measurement.
13	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): °dH, °eH, °fH, mg/l Ca.
- Highly alkaline or acidic samples should be adjusted to pH 4 to 10 by adding 1 mol/l acetic acid or1 mol/l caustic soda, respectively.

(57)

Tablet

Hardness-total HR

20 - 500 mg/l ($CaCO_3$)

Internal Name: 57-Hard-tot-HR-tab

Total Hardness Photometer (TbsPTH)

Measurement procedure:

1	Fill 9 ml distilled water in a clean 24 mm cuvette.
2	Fill 1 ml sample water in the same cuvette.
3	Screw the lid back on the cuvette.
4	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
5	Start ZERO measurement.
6	Remove the cuvette again.
7	Unscrew the lid from the cuvette.
8	Add 1 Total Hardness Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to perform the measurement.
15	After the lapse of a 5:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): °dH, °eH, °fH, mg/l Ca.
- Highly alkaline or acidic samples should be adjusted to pH 4 to 10 by adding 1 mol/l acetic acid or1 mol/l caustic soda, respectively.

(78)

Tablet

Hardness-Calcium

0 - 500 mg/l ($CaCO_3$)

Internal Name: 78-Hard-Cal-tab

Calcium Hardness N°2 Photometer (TbsPCH2)
Calcium Hardness N°1 Photometer (TbsHCH1)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Calcium Hardness N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Add 1 Calcium Hardness N°2 Photometer tablet(s) to the test water in the cuvette.
11	Crush the tablet with a clean stirring rod.
12	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to perform the measurement.
17	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): °dH, °eH, °fH.
- If your reading is towards the upper limit of the test a dilution is recommended.
- Highly alkaline or acidic samples should be adjusted to pH 4 to 10 by adding 1 mol/l acetic acid or1 mol/l caustic soda, respectively.
- The following ions might interfere with the test method: Magnesium (> 200 mg/l $CaCO_3$), zinc (> 5 mg/l), iron (> 10 mg/l).

(148)

Liquid

Hardness-total HR

0 - 500 mg/l ($CaCO_3$)

Internal Name: 148-Total-Hardness-liq

Total Hardness (POL20TH1)
Total Hardness (POL10TH2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 10 drop(s) of Total Hardness N°1 into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Add 4 drop(s) of Total Hardness N°2 into the cuvette.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to start a 02:00 minute(s) countdown.
15	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): °dH, °eH, °fH, mg/l Ca.
- Sulfide (high levels), sulfite, thiosulfate and hydrogen sulfites interfere with the measurement.

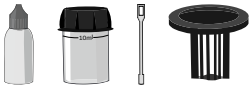
(166)

Liquid

Calcium hardness

0 - 500 mg/l ($CaCO_3$)

Internal Name: 166-Hard-Cal-liq



Calcium Hardness N° 1 (POL20CH1)
Calcium Hardness N° 2 (POL20CH2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 10 drop(s) of Calcium Hardness No.1 into the cuvette.
8	Add 10 drop(s) of Calcium Hardness No.2 into the cuvette.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Tap NEXT to start a 10:00 minute(s) countdown.
12	Wait until the 10:00 minute(s) countdown ran out.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to perform the measurement.
16	After the lapse of a 00:15 minute(s) countdown the measured value is displayed.

Notes:

- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(23)

Liquid

Hydrazine

0 - 600 µg/l (N_2H_4)

Internal Name: 23-Hydrazine-liq

65ml PL Hydrazine N°1 (PL65Hydraz1)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 10 drop(s) of PL Hydrazine 1 into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to start a 05:00 minute(s) countdown.
12	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The temperature of the water sample should be between 17 °C and 25 °C.
- Interferences: i) Hazy test sample, ii) The presence of excessive detergents

(160)

Hydrocarbons

0 - 1 NTU (Turb)

Internal Name: 160-Hydrocarbons

Measurement procedure:

1. Fill 7.5 ml distilled water in a clean 24 mm cuvette.
2. Fill 2.5 ml sample water in the same cuvette.
3. Screw the lid back on the cuvette.
4. Gently swirl the cuvette to mix the liquid well.
5. Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
6. Tap TEST to perform the measurement.

Notes:

- Interferences: i) Hazy test sample, ii) The presence of excessive detergents
- The result is interpreted as follows: "0" = PASSED, "OR" = FAILED

(24)

Tablet

Hydrogen Peroxide LR

0.00 - 3.80 mg/l (H_2O_2)

Internal Name: 24-Hydr-Per-LR-tab

Hydrogen Peroxide LR Photometer (TbsPHP)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 1 Hydr. Peroxide LR Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Fill the cuvette to 10 ml with the sample water.
11	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
12	Screw the lid back on the cuvette.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to start a 02:00 minute(s) countdown.
15	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- If the sample water contains further oxidizing agents, these will react like hydrogen peroxide and contribute to the measurement result.
- Make sure no hydrogen peroxide escapes while preparing the sample. The measurement must be performed directly after sampling.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.

- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- If the sample water contains more than 10 mg/l hydrogen peroxide, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.

(25)

Liquid

Hydrogen Peroxide HR

0 - 200 mg/l (H_2O_2)

Internal Name: 25-Hydr-Per-HR-liq

65ml PL Hydrogen Peroxide HR N°1 (PL65HydHRP1)
65ml PL Hydrogen Peroxide HR N°2 (PL65HydHRP2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 3 drop(s) of PL Hydrogen Peroxide HR 1 into the cuvette.
8	Gently swirl the cuvette to mix the liquid well.
9	Add 3 drop(s) of PL Hydrogen Peroxide HR 2 into the cuvette.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to perform the measurement.
14	The measured value is immediately displayed.

Notes:

- If the sample water contains further oxidizing agents, these will react like hydrogen peroxide and contribute to the measurement result.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.

(66)

Liquid

Hydrogen Peroxide LR

0.00 - 1.90 mg/l (H_2O_2)

Internal Name: 66-Hydr-Per-LR-liq

30ml Hydrogen Peroxide LR N°1 (PL30HydLRP1)
30ml PL Hydrogen Peroxide LR N°2 (PL30HydLRP2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 3 drop(s) of PL Hydrogen Peroxide LR 1 into the cuvette.
9	Add 3 drop(s) of PL Hydrogen Peroxide LR 2 into the cuvette.
10	Fill the cuvette to 10 ml with the sample water.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to perform the measurement.
15	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- If the sample water contains more than 10 mg/l hydrogen peroxide, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- Make sure no hydrogen peroxide escapes while preparing the sample. The measurement must be performed directly after sampling.
- If the sample water contains further oxidizing agents, these will react like hydrogen peroxide and contribute to the measurement result.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.

- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(162)

Tablet

Hydrogen Peroxide HR

0 - 200 mg/l (H_2O_2)

Internal Name: 162-HydrPer-HR-tab

Acidifying PT Photometer (TbsHAFPP)
Hydrogen Peroxide HR Photometer (TbsPHPHR)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Acidifying PT Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Add 1 Hydr. Peroxide HR Photometer tablet(s) to the test water in the cuvette.
11	Crush the tablet with a clean stirring rod.
12	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to perform the measurement.
17	The measured value is immediately displayed.

Notes:

- If the sample water contains further oxidizing agents, these will react like hydrogen peroxide and contribute to the measurement result.
- Make sure no hydrogen peroxide escapes while preparing the sample. The measurement must be performed directly after sampling.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.

- If your sample water is very alkaline or acidic this must be adjusted to a pH range between 6 and 7 by the addition of 0.5 mol/l sulphuric acid or resp. 1 mol/l caustic soda before the reagent is added.

(173)

Liquid

Sanosil Super25 Ag

0 - 400 mg/l (Sanosil)

Internal Name: 173-Sanosil-liq

65ml PL Hydrogen Peroxide HR N°1 (PL65HydHRP1)
65ml PL Hydrogen Peroxide HR N°2 (PL65HydHRP2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 3 drop(s) of PL Hydrogen Peroxide HR 1 into the cuvette.
8	Gently swirl the cuvette to mix the liquid well.
9	Add 3 drop(s) of PL Hydrogen Peroxide HR 2 into the cuvette.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to perform the measurement.
14	The measured value is immediately displayed.

Notes:

- All oxidizing substances in the water sample, such as chlorine, active oxygen, bromine, will also be detected and contribute to the result.

(26)

Liquid

Hydroquinone

0.00 - 2.50 mg/l ($C_6H_6O_2$)

Internal Name: 26-Hydroquinon-liq

PL Oxygen Scavenger 1 (65 ml) (PL65OxyScav1)
PL Oxygen Scavenger 2 (65 ml) (PL65OxyScav2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 6 drop(s) of PL Oxygen Scavenger 1 into the cuvette.
8	Gently swirl the cuvette to mix the liquid well.
9	Add 25 drop(s) of PL Oxygen Scavenger 2 into the cuvette.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to start a 10:00 minute(s) countdown.
14	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- Shake the liquid reagent thoroughly before adding the liquid to the vial.

(27)

Tablet

Iodine

0.00 - 28.00 mg/l (I_2)

Internal Name: 27-Iodine-tab

DPD N°1 Photometer (TbsPD1)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 1 DPD N°1 Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Fill the cuvette to 10 ml with the sample water.
11	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to start a 00:10 minute(s) countdown.
16	After the lapse of a 00:10 minute(s) countdown the measured value is displayed.

Notes:

- Water samples with a high calcium content resp. a high conductivity will render the sample cloudy, which is detrimental to the measurement precision. In this case use "DPD N°1 High Calcium (HC)" reagents.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.

- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- If the sample water contains more than 60 mg/l iodine, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- If the sample water contains further oxidizing agents, these will react like iodine and contribute to the measurement result.

(67)

Liquid

Iodine

0.00 - 14.00 mg/l (I_2)

Internal Name: 67-Iodine-liq

30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD 1 B (PL30DPD1B)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 3 drop(s) of PL DPD 1 A into the cuvette.
9	Add 3 drop(s) of PL DPD 1 B into the cuvette.
10	Fill the cuvette to 10 ml with the sample water.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to perform the measurement.
15	The measured value is immediately displayed.

Notes:

- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Shake the liquid reagent thoroughly before adding the liquid to the vial.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- If the sample water contains more than 60 mg/l iodine, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- If the sample water contains further oxidizing agents, these will react like iodine and contribute to the measurement result.

- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.

(28)

Tablet

Iron LR

0.00 - 1.00 mg/l (Fe^{2+}/Fe^{3+})

Internal Name: 28-Iron-LR-tab

Iron LR Photometer (TbsPILR)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Iron LR Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to start a 05:00 minute(s) countdown.
14	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- If the sample contains undissolved iron, filter thoroughly (several times, if necessary).
- If the sample contains predominantly Fe(III), the reaction time should be extended by at least 30 minutes.

(29) Iron MR (dissolved)

Powder Can

0.0 - 10.0 mg/l (Fe^{2+}/Fe^{3+})

Internal Name: 29-Iron-MR-pow

20g PL Iron MR N°1 (Plpow20IronMR1)

Measurement procedure:

1	Separate the two halves of the filter holder.
2	Insert a 25 mm (0.45 µm) filter. Screw the filter holder back together, making sure that the O-ring is correctly seated.
3	Fill a clean 20 ml syringe with 14 ml sample water.
4	Connect the syringe to the filter holder.
5	Empty the syringe with the filter up to the 10 ml mark.
6	Press 10 ml of the remaining sample water in the filter syringe through the filter adapter into a clean 24 mm cuvette.
7	Screw the lid back on the cuvette.
8	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
9	Start ZERO measurement.
10	Remove the cuvette again.
11	Unscrew the lid from the cuvette.
12	Add 1 x 0.05 ml PL Iron MR 1 scoop(s) powder to the sample water in the cuvette.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 03:00 minute(s) countdown.
17	After the lapse of a 03:00 minute(s) countdown the measured value is displayed.

Notes:

- Special accessories required / not included as standard equipment!
- If the sample contains undissolved iron, filter thoroughly (several times, if necessary).
- Highly alkaline and acidic samples must be adjusted to pH 3 to 5 before commencing the measurement.
- The measurement is not influenced by undissolved powder.

- If your sample contains visible rust, extend countdown to 05:00 minutes manually by waiting 02:00 minutes before pressing TEST.

(29) Iron MR (total)

Powder Can

0.0 - 10.0 mg/l (Fe^{2+}/Fe^{3+})

Internal Name: 29-Iron-MR-pow

20g PL Iron MR N°1 (Plpow20IronMR1)

Measurement procedure:

1	Fill 10 ml unfiltered sample water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 x 0.05 ml PL Iron MR 1 scoop(s) powder to the sample water in the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to start a 03:00 minute(s) countdown.
12	After the lapse of a 03:00 minute(s) countdown the measured value is displayed.

Notes:

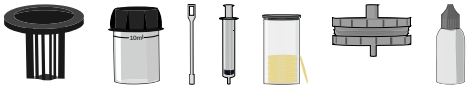
- Special accessories required / not included as standard equipment!
- If the sample contains undissolved iron, filter thoroughly (several times, if necessary).
- Highly alkaline and acidic samples must be adjusted to pH 3 to 5 before commencing the measurement.
- The measurement is not influenced by undissolved powder.
- If your sample contains visible rust, extend countdown to 05:00 minutes manually by waiting 02:00 minutes before pressing TEST.

(30) Iron HR (dissolved)

Liquid

0.0 - 20.0 mg/l (Fe^{2+}/Fe^{3+})

Internal Name: 30-Iron-HR-liq



65ml PL Iron HR N°1 (PL65IronHR1)
PL Iron HR 2 (PL65IronHR2)

Measurement procedure:

1	Separate the two halves of the filter holder.
2	Insert a 25 mm (0.45 µm) filter. Screw the filter holder back together, making sure that the O-ring is correctly seated.
3	Fill a clean 20 ml syringe with 14 ml sample water.
4	Connect the syringe to the filter holder.
5	Empty the syringe with the filter up to the 10 ml mark.
6	Press 10 ml of the remaining sample water in the filter syringe through the filter adapter into a clean 24 mm cuvette.
7	Screw the lid back on the cuvette.
8	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
9	Start ZERO measurement.
10	Remove the cuvette again.
11	Unscrew the lid from the cuvette.
12	Add 10 drop(s) of PL Iron HR 1 into the cuvette.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to perform the measurement.
17	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

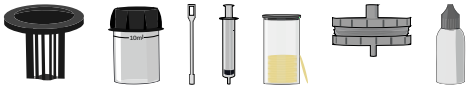
- Special accessories required / not included as standard equipment!
- If the sample contains undissolved iron, filter thoroughly (several times, if necessary).
- High nitrite values influence the measurement. If the sample water turns red or pink after adding "PL Iron HR 1", prepare a new sample and add with 0.1 g "TN1" powder. Wait for 2 minutes and start the measurement procedure as described.

(30) Iron HR (total)

Liquid

0.0 - 20.0 mg/l (Fe^{2+}/Fe^{3+})

Internal Name: 30-Iron-HR-liq



65ml PL Iron HR N°1 (PL65IronHR1)
PL Iron HR 2 (PL65IronHR2)

Measurement procedure:

1	Fill 10 ml unfiltered sample water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 2 drop(s) of PL Iron HR 2 into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to perform the measurement.
12	Wait until the 02:00 minute(s) countdown ran out.
13	Remove the cuvette again.
14	Unscrew the lid from the cuvette.
15	Add 15 drop(s) of PL Iron HR 1 into the cuvette.
16	Screw the lid back on the cuvette.
17	Gently swirl the cuvette to mix the liquid well.
18	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
19	Tap TEST to start a 05:00 minute(s) countdown.
20	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- Special accessories required / not included as standard equipment!
- If the sample contains undissolved iron, filter thoroughly (several times, if necessary).

- High nitrite values influence the measurement. If the sample water turns red or pink after adding "PL Iron HR 1", prepare a new sample and add with 0.1 g "TN1" powder. Wait for 2 minutes and start the measurement procedure as described.

(127)

Powder Can

Iron MR

0.0 - 10.0 mg/l (Fe^{2+})

Internal Name: 127-Iron-MR-Fe-pow

20g PL Iron MR N°2 (PLpow20IronMR2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 x 0.05 mL PL Iron MR 2 scoop(s) powder to the sample water in the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to start a 03:00 minute(s) countdown.
12	After the lapse of a 03:00 minute(s) countdown the measured value is displayed.

Notes:

- Test needs to be carried out immediately after taking the sample.

(132) Iron LR (total)

Powder Pack

0.00 - 3.00 mg/l (Fe^{2+}/Fe^{3+})

Internal Name: 132-Iron-tot-LR-pp

FerroVer Iron (PP) (ppFerVer1)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 FerroVer Iron powder pillow to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to start a 03:00 minute(s) countdown.
13	After the lapse of a 03:00 minute(s) countdown the measured value is displayed.

Notes:

- If your sample contains rust, extend countdown to 05:00 minutes manually by waiting 02:00 minutes before pressing TEST.
- Dilute samples with high iron concentration as high iron samples inhibit colour development.
- Iron oxide requires pre-treatment of the sample (digestion and pH adjustment to pH 3 - 5).

(199)

Tablet

Iron LR

0.00 - 1.00 mg/l (Fe^{2+}/Fe^{3+})

Internal Name: 199-Iron LR

Iron LR No.1 Photometer (TbsHILR1)
Iron LR No.2 Photometer (TbsPILR2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Iron LR No. 1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Add 1 Iron LR No. 2 Photometer tablet(s) to the test water in the cuvette.
11	Crush the tablet with a clean stirring rod.
12	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 05:00 minute(s) countdown.
17	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

(88)

Liquid

Isothiazolinone

0.0 - 10.0 mg/l (C_3H_3NOS)

Internal Name: 88-Isothiazol-liq

30ml PL Isothiazolinone N°1 (PL30Isoz1)
65ml PL Isothiazolinone N°2 (PL65Isoz2)
65ml PL Isothiazolinone N°3 (PL65Isoz3)
65ml PL Isothiazolinone N°4 (PL65Isoz4)
30ml PL Isothiazolinone N°5 (PL30Isoz5)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 4 drop(s) of PL Isothiazolinone 1 into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Add 15 drop(s) of PL Isothiazolinone 2 into the cuvette.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to start a 01:00 minute(s) countdown.
15	Remove the cuvette again.
16	Unscrew the lid from the cuvette.
17	Add 17 drop(s) of PL Isothiazolinone 3 into the cuvette.
18	Screw the lid back on the cuvette.
19	Gently swirl the cuvette to mix the liquid well.
20	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
21	Tap TEST to start a 01:00 minute(s) countdown.
22	Remove the cuvette again.
23	Unscrew the lid from the cuvette.
24	Add 10 drop(s) of PL Isothiazolinone 4 into the cuvette.
25	Screw the lid back on the cuvette.
26	Gently swirl the cuvette to mix the liquid well.

27	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
28	Tap TEST to start a 02:00 minute(s) countdown.
29	Remove the cuvette again.
30	Unscrew the lid from the cuvette.
31	Add 3 drop(s) of PL Isothiazolinone 5 into the cuvette.
32	Screw the lid back on the cuvette.
33	Gently swirl the cuvette to mix the liquid well.
34	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
35	Tap TEST to start a 02:00 minute(s) countdown.
36	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

(147) Legionella (Countdown + Test)

Reagent-Kit

60 - 1000000 cfu/test (Leg)

Internal Name: 147-Legionella-liq (Countdown + Test)

Legipid Kit 10 (LGP-10)

Measurement procedure:

1	Perform the measuring procedure according to the Biótica instructions.
2	Eluate filtered particles by shaking for 02:00 minute(s).
3	Tap TEST to start a 02:00 minute(s) countdown.
4	Tap TEST to start a 15:00 minute(s) countdown.
5	Tap TEST to start a 05:00 minute(s) countdown.
6	Tap TEST to start a 03:00 minute(s) countdown.
7	Tap TEST to start a 10:00 minute(s) countdown.
8	Tap TEST to start a 03:00 minute(s) countdown.
9	Tap TEST to start a 03:00 minute(s) countdown.
10	Tap TEST to start a 03:00 minute(s) countdown.
11	Tap TEST to start a 03:00 minute(s) countdown.
12	Tap TEST to start a 02:00 minute(s) countdown.
13	Tap TEST to start a 05:00 minute(s) countdown.
14	Insert the filled 1 ml LG-CB cuvette into the photometer.
15	Put on the lightshield.
16	Start ZERO measurement.
17	Insert the filled 1 ml LG-CB cuvette into the photometer.
18	Put on the lightshield.
19	Tap TEST to perform the measurement.
20	The measured value is immediately displayed.

Notes:

- Result is displayed as “cfu/l” which is related to filtration of 1 litre of your sample.
- Once reagents are received, kit MUST be stored between +2 °C and +8 °C, preferrably at +4 °C.
- Expiry date of the reagents is 3 months from production date on.

- Avoid contact with eyes. Wear protective gloves.
- Certain isolates cannot be detected below 106 cfu.
- Disposal of product according to local regulations. Products are stable and unlikely to react in a hazardous manner under normal conditions of use.
- Do NOT re-use semi-micro vials (LG-CB).
- Leave at least 12 cm space between multiple LG-MH (magnetic holders).
- Reagents are supplied in excess. Do NOT re-use any leftover amounts of reagents.
- When emptying cuvettes LG-MHCB, always do so to the BACK and never in front (magnet)!
- Please follow the test procedure properly to avoid misreadings.
- Once lids of LG-MHCB are removed and to discarded, do NOT use them for any of the following test steps.
- If you do more than 1 test at the same time, only one blanc/ZERO vial is needed.
- We propose to use LG-MP4 automatic agitator plate to place up to 20 LG-MHCB cuvettes in case you do multiple tests at one time.
- Measurement has to be performed immediately after the last step (countdown), as the color reaction might continue.
- Leaving reagents at room temperature for 30 minutes before starting the test is essential.
- When using larger units of reagents, immediately restore in fridge after use.
- Depending on the water quality of the test water, the pre-filter have to be changed during the filter process, if it is too dirty.

(147) Legionella (ZERO + Test)

Reagent-Kit

60 - 1000000 cfu/test (Leg)

Internal Name: 147-Legionella-liq (ZERO + Test)

Legipid Kit 10 (LGP-10)

Measurement procedure:

1	Insert the filled 1 ml LG-CB cuvette into the photometer.
2	Put on the lightshield.
3	Start ZERO measurement.
4	Insert the filled 1 ml LG-CB cuvette into the photometer.
5	Put on the lightshield.
6	Tap TEST to perform the measurement.
7	The measured value is immediately displayed.

(93)

Tablet

Magnesium

0 - 100 mg/l (Mg)

Internal Name: 93-Magnesium-tab

Magnesium Photometer (TbsPMag)

Measurement procedure:

1	Fill 9 ml distilled water in a clean 24 mm cuvette.
2	Fill 1 ml sample water in the same cuvette.
3	Screw the lid back on the cuvette.
4	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
5	Start ZERO measurement.
6	Remove the cuvette again.
7	Unscrew the lid from the cuvette.
8	Add 1 Magnesium Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to perform the measurement.
14	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l $CaCO_3$ (Magnesium Hardness).
- Due to the method, readings between 40 and 100 mg/l may deviate from the actual concentration. For measurement results above 40 mg/l, a 1:1 dilution is recommended.

(31)

Powder Pack

Manganese

0.20 - 5.00 mg/l (Mn)

Internal Name: 31-Manganese-LR-tab

Manganese LR N°1 Photometer (PPHMGNSLR1)
Manganese LR N°2 Photometer (PPPMGNSLR2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Manganese LR N°1 Photometer powder pillow to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Add 1 Manganese LR N°2 Photometer powder pillow to the sample water in the cuvette.
11	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to start a 05:00 minute(s) countdown.
16	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l MnO_4^-, mg/l $KMnO_4$.

(161)

Tablet

Manganese VLR

0.000 - 0.030 mg/l (Mn)

Internal Name: 161-Manganese-VLR

Manganese VLR N°1 Photometer (TbsHMagVLR1)
Manganese VLR N°2 Photometer (TbsPMagVLR2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Manganese VLR N°1 tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Add 1 Manganese VLR N°2 tablet(s) to the test water in the cuvette.
10	Crush the tablet with a clean stirring rod.
11	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to start a 20:00 minute(s) countdown.
16	After the lapse of a 20:00 minute(s) countdown the measured value is displayed.

Notes:

- Colour formation is extremely temperature sensitive. A temperature of 20 °C +/- 1 °C gives the optimum test results.
- For optimum test results, the sample needs a standing period of 20 min +/- 1 minute. Further colour change and colour development after this time should be ignored.

(69)

Liquid

Methylethylketoxime

0.00 - 4.10 mg/l (C_4H_9NO)

Internal Name: 69-Methylethyl-liq

PL Oxygen Scavenger 1 (65 ml) (PL65OxyScav1)
PL Oxygen Scavenger 2 (65 ml) (PL65OxyScav2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 6 drop(s) of PL Oxygen Scavenger 1 into the cuvette.
8	Add 25 drop(s) of PL Oxygen Scavenger 2 into the cuvette.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

(32)

Tablet

Molybdate

1.0 - 100.0 mg/l (MoO_4^{2-})

Internal Name: 32-Molybdat-HR-tab

Molybdate N°1 HR Photometer (TbsHMDH1)
Molybdate N°2 HR Photometer (TbsPMDH2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Molybdate HR N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Add 1 Molybdate HR N°2 Photometer tablet(s) to the test water in the cuvette.
11	Crush the tablet with a clean stirring rod.
12	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to perform the measurement.
17	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l Mo, mg/l Na_2MoO_4.

(33)

Liquid

Molybdate HR

5.0 - 200.0 mg/l (MoO_4^{2-})

Internal Name: 33-Molybdat-HR-liq

65ml PL Molybdate N°1 (PL65Moly1)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 10 drop(s) of PL Molybdate 1 into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to perform the measurement.
12	The measured value is immediately displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l Mo, mg/l Na_2MoO_4.

(96)

Tablet

Molybdat LR

0.0 - 15.0 mg/l (MoO_4^{2-})

Internal Name: 96-Molybd-LR-tab

Molybdate LR N°1 Photometer (TbsHMDL1)
Molybdate LR N°2 Photometer (TbsPMDL2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Molybdate LR N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Add 1 Molybdate LR N°2 Photometer tablet(s) to the test water in the cuvette.
11	Crush the tablet with a clean stirring rod.
12	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 02:00 minute(s) countdown.
17	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l Mo, mg/l Na_2MoO_4.
- Filter sample if neccessary to test a clear sample.

(134)

Powder Pack

Molybdate HR

0.0 - 40.0 mg/l (MoO_4^{2-})

Internal Name: 134-Molybd-HR-pp

MolyVer 1 (PP) (ppMolyVer1)
MolyVer 2 (PP) (ppMolyVer2)
MolyVer 3 (PP) (ppMolyVer3)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 MolyVer 1 powder pillow to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	Add 1 MolyVer 2 powder pillow to the sample water in the cuvette.
10	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
11	Add 1 MolyVer 3 powder pillow to the sample water in the cuvette.
12	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 05:00 minute(s) countdown.
17	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The following substances interfere with the measurement: Aluminium (> 50 mg/l), chromium (> 1000 mg/l), iron (> 50 mg/l), nickel (> 50 mg/l), nitrite (> 2000 mg/l as NO_2^-; can be eliminated by adding one sulfamic acid powder pillow to the sample).
- Concentrations of > 10 mg/l copper increase the reading, if the test is not performed quickly enough.
- Highly buffered samples or samples with extreme pH levels may require pre-treatment.

(90)

Tablet

Nickel HR

0.0 - 7.0 mg/l (Ni)

Internal Name: 90-Nickel-HR-tab

Nickel HR N°1 Photometer (TbsHNickHR1)
Nickel HR N°2 Photometer (TbsPNickHR2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Nickel HR N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Add 1 Nickel HR N°2 Photometer tablet(s) to the test water in the cuvette.
10	Crush the tablet with a clean stirring rod.
11	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
12	Screw the lid back on the cuvette.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to start a 02:00 minute(s) countdown.
15	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- Iron will interfere with this test and can influence the readings.
- EDTA levels above 25 mg/l will interfere with this test and can influence the reading (low reading).
- Cobalt levels above > 0.5 mg/l will interfere with this test and can influence the reading (high reading).

(100)

Liquid

Nickel HR

0.0 - 10.0 mg/l (Ni)

Internal Name: 100-Nickel-HR-liq

65ml PL Nickel HR N°1 (PL65NickHR1)
30ml PL Nickel HR N°2 (PL30NickHR2)
30ml PL Nickel HR N°3 (PL30NickHR3)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 0.5 ml of PL Nickel HR 1 to the sample in the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Tap TEST to start a 01:00 minute(s) countdown.
11	Unscrew the lid from the cuvette.
12	Add 5 drop(s) of PL Nickel HR 2 into the cuvette.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Unscrew the lid from the cuvette.
16	Add 5 drop(s) of PL Nickel HR 3 into the cuvette.
17	Screw the lid back on the cuvette.
18	Gently swirl the cuvette to mix the liquid well.
19	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
20	Tap TEST to perform the measurement.
21	After the lapse of a 15:00 minute(s) countdown the measured value is displayed.

Notes:

- Iron will interfere with this test and can influence the readings.
- EDTA levels above 25 mg/l will interfere with this test and can influence the reading (low reading).

- Cobalt levels above > 0.5 mg/l will interfere with this test and can influence the reading (high reading).

(34)

Powder Can + Liquid

Nitrate

0.00 - 11.00 mg/l (N)

Internal Name: 34-Nitrate-pow

20g PL Nitrate N°1 (PLpow20Nitra1)
65ml PL Nitrate N°2 (PL65Nitra2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 0.05 ml PL Nitrate 1 scoop(s) powder to the sample water in the cuvette.
8	Screw the lid back on the cuvette.
9	Swirl the cuvette for 00:15 minute(s).
10	Unscrew the lid from the cuvette.
11	Add 10 drop(s) of PL Nitrate 2 into the cuvette.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to start a 15:00 minute(s) countdown.
16	After the lapse of a 15:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l NO_3^-.
- The best results are obtained between 0 - 6 mg/l (N) / 0 - 25 mg/l (NO3-). If your water sample is likely to contain more nitrate, dilution of the sample is recommended.

(169)

Powder Pack

Nitrate HR

1 - 100 mg/l (NO_3^-)

Internal Name: 169-Nitrate-HR-pp

Nitrate N°1 Photometer (PPHNitra1)
Nitrate N°2 Photometer (PPPNitra2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette from the photometer and set it aside. It is no longer required for this test.
6	Fill 20 ml sample water in a test tube.
7	Add a Nirate N°1 Photometer powder pillow to the test tube.
8	Then add a Nitrate N°2 Photometer powder pillow to the test tube.
9	Screw the lid back on the tube.
10	Shake the tube heavily for 00:15 minute(s).
11	Tap TEST to start a 10:00 minute(s) countdown.
12	Wait until the 10:00 minute(s) countdown ran out.
13	Remove 10 ml from the tube by using a syringe.
14	Empty the 10 ml from the previous step in a clean 24 mm cuvette.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to perform the measurement.
17	The measured value is immediately displayed.

Notes:

- In presence of nitrites, measurements of excessively high nitrate levels are possible. For correction, subtract the nitrite-nitrogen (N) from the content of the nitrate-nitrogen (N). For this, the measurement results of the nitrate or nitrite measurement must be calculated in nitrogen (N).
- Too short or too weak shaking of the sample may result in lower nitrate levels.
- If an uneven color distribution in the shaker is observed within the waiting time, it should be reversed again. The current countdown remains unaffected.

- A small amount of solid may remain undissolved in the shaker and should not be transferred to the cuvette.
- Test should be carried out at a temperature of 20 °C. Lower temperatures may decrease the reading.

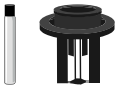
(190)

Prepared Vial
+ Powder Pack

Nitrate

1.0 - 30.0 mg/l (N)

Internal Name: 190-Nitrate-TT



Nitrate TT No.1 (PL190-KUV)
Nitrate TT No.2 (PPPNitra2TT)

Measurement procedure:

1	Prepare 2 Nitrate TT No. 1 cuvettes (16 mm). Label one as a ZERO cuvette.
2	Open the first cuvette (ZERO cuvette).
3	Fill 1 ml distilled water into the ZERO cuvette.
4	Add a Nitrate TT No. 2 powder pillow in the cuvette.
5	Open the second vial (sample vial).
6	Fill 1 ml sample water into the sample cuvette.
7	Add a Nitrate TT No. 2 powder pillow in the cuvette.
8	Screw the lid back on both cuvettes.
9	Gently swirl the cuvette to mix the liquid well.
10	Place the 16 mm adapter in the photometer.
11	Tap NEXT to start a 05:00 minute(s) countdown.
12	Place the ZERO cuvette in the photometer.
13	Put on the lightshield.
14	Start ZERO measurement.
15	Remove the lightshield.
16	Remove the cuvette again.
17	Insert the sample cuvette in the photometer.
18	Put on the lightshield.
19	Tap TEST to perform the measurement.

(35)

Powder Pack

Nitrite LR

0.00 - 0.50 mg/l (N)

Internal Name: 35-Nitrite-LR-tab

Nitrite LR Photometer (PPPNiLR)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Nitrite LR Photometer powder pillow to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	Screw the lid back on the cuvette.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to start a 10:00 minute(s) countdown.
12	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l $NaNO_2$, mg/l NO_2^-.

(36)

Powder Can

Nitrite HR

5 - 200 mg/l ($NaNO_2$)

Internal Name: 36-Nitrite-HR-pow

PL Nitrite HR N°1 (PLpow40NitriHR1)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 0.05 ml PL Nitrite HR 1 scoop(s) powder to the sample water in the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to start a 10:00 minute(s) countdown.
12	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l N, mg/l NO_2^-.

(97)

Tablet

Nitrite HR

0 - 1500 mg/l ($NaNO_2$)

Internal Name: 97-Nitrite-HR-tab

Nitrite HR N°1 Photometer (TbsHNiHR1)
Nitrite HR N°2 Photometer (TbsPNiHR2)

Measurement procedure:

1	Fill 9 ml distilled water in a clean 24 mm cuvette.
2	Fill 1 ml sample water in the same cuvette.
3	Screw the lid back on the cuvette.
4	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
5	Start ZERO measurement.
6	Remove the cuvette again.
7	Unscrew the lid from the cuvette.
8	Add 1 Nitrite HR N°1 Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
11	Add 1 Nitrite HR N°2 Photometer tablet(s) to the test water in the cuvette.
12	Crush the tablet with a clean stirring rod.
13	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
14	Screw the lid back on the cuvette.
15	Gently swirl the cuvette to mix the liquid well.
16	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
17	Tap TEST to start a 05:00 minute(s) countdown.
18	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- Filter sample if neccessary to test a clear sample.
- Make sure the temperature of the sample does not exceed 30 °C.
- Chlorine levels above 30 mg/l interfere with this test and can influence the reading.
- The test needs to be performed without a delay. Place the vial into the PrimeLab right after reagents have dissolved and lid is closed. Immediately press TEST. It is essential for the accuracy of this test to keep the countdown of 05:00 minutes right after dissolving the tablets/ closing the lid/placing the vial into the PrimeLab.

- DO NEVER SHAKE THE VIAL!
- For expected readings below 400 mg/l, it is strongly recommended to use ID 36 (Nitrite with powder reagents 0 - 200 mg/l; extended range 0 - 400 mg/l by 1:1 dilution).

(101)

Liquid

Nitrite HR

0 - 3000 mg/l ($NaNO_2$)

Internal Name: 101-Nitrite-HR-liq

65ml PL Nitrite HR N°2 (PL65NitriteHR2)

Measurement procedure:

1	Fill 9 ml distilled water in a clean 24 mm cuvette.
2	Fill 1 ml sample water in the same cuvette.
3	Screw the lid back on the cuvette.
4	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
5	Start ZERO measurement.
6	Remove the cuvette again.
7	Unscrew the lid from the cuvette.
8	Add 15 drop(s) of PL Nitrite HR 2 into the cuvette.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

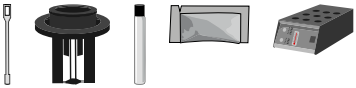
- The test result can be converted into the following unit(s): mg/l N, mg/l NO_2^-.

(151) Nitrogen-total LR (all steps)

Prepared Vial + Powder Pack

0.5 - 25.0 mg/l (N)

Internal Name: 151-NitroTotLR-pre



Nitrogen LR Vial (PL151-KUV)
Nitrogen LR/HR Vial (PL151152-KUV)
Nitrogen A (PPPNitroA)
Nitrogen B (PPPNitroB)
Nitrogen 1 (PPPNitro1)

Measurement procedure:

1	Prepare 2 TN Hydroxide LR cuvettes (16 mm). Label one as a ZERO cuvette.
2	Add 1 x TN Persulfate Reagent powder pillow into both cuvettes.
3	Open the first cuvette (ZERO cuvette) and add 2 ml distilled water.
4	Open the second cuvette (sample cuvette) and add 2 ml sample water.
5	Screw the lid immediately back onto both cuvettes.
6	Shake the vials vigorously for 00:30 minute(s).
7	Tap TEST to start a 00:30 minute(s) countdown.
8	Place cuvettes for 30 minutes at 100 °C in the preheated thermoreactor.
9	Tap TEST to start a 30:00 minute(s) countdown.
10	CAUTION: Cuvettes are hot!
11	Remove the cuvettes from the thermoreactor.
12	Let the cuvettes cool down to at least 25 °C.
13	Add 1 x TN Reagent A powder pillow into both cuvettes.
14	Screw the lid immediately back onto both cuvettes.
15	Shake the vials vigorously for 00:20 minute(s).
16	Tap TEST to start a 00:20 minute(s) countdown.
17	The reagents should now react.
18	Tap TEST to start a 03:00 minute(s) countdown.
19	Add 1 x TN Reagent B powder pillow into both cuvettes.
20	Screw the lid back on both cuvettes.
21	Shake the vials vigorously for 00:20 minute(s).
22	Tap TEST to start a 00:20 minute(s) countdown.
23	The reagents should now react.
24	Tap TEST to start a 02:00 minute(s) countdown.
25	Open 1 TN Acid LR/HR cuvette and add 2 ml sample water from the previous ZERO cuvette. This is your new ZERO cuvette.
26	Add 2 ml from the previous test cuvette into a new cuvette. This is your new test cuvette.

27	Screw the lid back on both cuvettes.
28	Gently swirl both cuvettes to mix the liquids well. Caution, heat development!
29	Place the 16 mm adapter in the photometer.
30	Place the ZERO cuvette in the photometer.
31	Put on the lightshield.
32	Start ZERO measurement.
33	Remove the cuvette again.
34	Insert the sample cuvette in the photometer.
35	Put on the lightshield.
36	Tap TEST to perform the measurement.
37	The measured value is immediately displayed.

Notes:

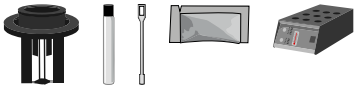
- If you intend to use last ZERO, please ignore steps where you are asked to prepare a ZERO vial.
- The test result can be converted into the following unit(s): mg/l NH_3, mg/l NH_4^+.
- This test can be used for water, wastewater and seawater.
- Remove powder from vial edges, lid and tube threads after adding powder.
- Use volumetric pipettes to dose exactly 2 ml of the Acid LR/HR reagent.
- Reagents might not dissolve entirely.
- Incubation time shall NOT exceed 30 minutes!
- Step 28 to be performed by turning vial upside down and back, waiting for the solution to entirely flow down. Inverse 10 times.
- Zero vial can be stored and used for max. 7 days if stored in the dark
- Dilute and repeat measurement if large quantities of nitrogen compounds (free, organic) are present, as they may interfere and reduce the effectiveness of the digestion.
- Bromide concentrations > 60 mg/l and chloride concentrations > 1000 mg/l interfere and lead to results increased by 10 %.

(151) Nitrogen-Total LR (only ZERO and TEST)

Prepared Vial + Powder Pack

0.5 - 25.0 mg/l (N)

Internal Name: 151-NitroTotLR-pre



Nitrogen LR Vial (PL151-KUV)
Nitrogen LR/HR Vial (PL151152-KUV)
Nitrogen A (PPPNitroA)
Nitrogen B (PPPNitroB)
Nitrogen 1 (PPPNitro1)

Measurement procedure:

1	Place the 16 mm adapter in the photometer.
2	Place the ZERO cuvette in the photometer.
3	Put on the lightshield.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Insert the sample cuvette in the photometer.
7	Put on the lightshield.
8	Tap TEST to perform the measurement.

(152) Nitrogen-total HR (all Steps)

Powder Pack + Prepared Vial

5 - 150 mg/l (N)

Internal Name: 152-NitroTotHR-pre

Nitrogen 1 (PPPNitro1)
Nitrogen B (PPPNitroB)
Nitrogen A (PPPNitroA)
Nitrogen LR/HR Vial (PL151152-KUV)
Nitrogen HR Vial (PL152-KUV)

Measurement procedure:

1	Prepare 2 TN Hydroxide HR cuvettes (16 mm). Label one as a ZERO cuvette.
2	Add 1 x TN Persulfate Reagent powder pillow into both cuvettes.
3	Open the first cuvette (ZERO cuvette).
4	Fill 0.5 ml distilled water in the cuvette.
5	Open the second vial (sample vial).
6	Fill 0.5 ml sample water in the cuvette.
7	Screw the lid back on the cuvette IMMEDIATELY.
8	Shake the vials vigorously for 00:30 minute(s).
9	Tap TEST to start a 00:30 minute(s) countdown.
10	Place cuvettes for 30 minutes at 100 °C in the preheated thermoreactor.
11	Tap TEST to start a 30:00 minute(s) countdown.
12	CAUTION: Cuvettes are hot!
13	Remove the cuvettes from the thermoreactor.
14	Let the cuvettes cool down to at least 25 °C.
15	Add 1 x TN Reagent A powder pillow into both cuvettes.
16	Screw the lid back on the cuvette IMMEDIATELY.
17	Shake the vials vigorously for 00:20 minute(s).
18	Tap TEST to start a 00:20 minute(s) countdown.
19	The reagents should now react.
20	Tap TEST to start a 03:00 minute(s) countdown.
21	Add 1 x TN Reagent B powder pillow into both cuvettes.
22	Screw the lid back on the cuvette IMMEDIATELY.
23	Shake the vials vigorously for 00:20 minute(s).
24	Tap TEST to start a 00:20 minute(s) countdown.
25	The reagents should now react.
26	Tap TEST to start a 02:00 minute(s) countdown.

27	Open 2 TN Acid LR/HR cuvette and add 2 ml sample water from the previous ZERO cuvette. This is your new ZERO cuvette.
28	Add 2 ml from the previous test cuvette into a new cuvette. This is your new test cuvette.
29	Screw the lid back on both cuvettes.
30	Gently swirl both cuvettes to mix the liquids well. Caution, heat development!
31	Place the 16 mm adapter in the photometer.
32	Place the ZERO cuvette in the photometer.
33	Put on the lightshield.
34	Start ZERO measurement.
35	Remove the cuvette again.
36	Insert the sample cuvette in the photometer.
37	Put on the lightshield.
38	Tap TEST to perform the measurement.

Notes:

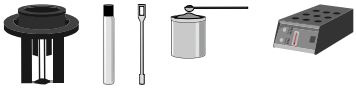
- The test result can be converted into the following unit(s): mg/l NH_3, mg/l NH_4^+.
- This test can be used for water, wastewater and seawater.
- Remove powder from vial edges, lid and tube threads after adding powder.
- Use volumetric pipettes to dose exactly 2 ml of the Acid LR/HR reagent.
- Reagents might not dissolve entirely.
- Incubation time shall NOT exceed 30 minutes!
- Step 30 should be performed by turning vial upside down and back. Waiting for the solution to entirely flow back and inverse 10 times.
- Zero vial can be stored and used for max. 7 days if stored in the dark
- Dilute and repeat measurement if large quantities of nitrogen compounds (free, organic) are present, as they may interfere and reduce the effectiveness of the digestion.
- Bromide concentrations > 60 mg/l and chloride concentrations > 1000 mg/l interfere and lead to results increased by 10 %.

(152) Nitrogen-Total HR (only ZERO and TEST)

Powder Pack + Prepared Vial

5 - 150 mg/l (N)

Internal Name: 152-NitroTotHR-pre



Nitrogen 1 (PPPNitro1)
Nitrogen B (PPPNitroB)
Nitrogen A (PPPNitroA)
Nitrogen LR/HR Vial (PL151152-KUV)
Nitrogen HR Vial (PL152-KUV)

Measurement procedure:

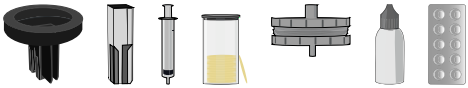
1	Place the 16 mm adapter in the photometer.
2	Place the ZERO cuvette in the photometer.
3	Put on the lightshield.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Insert the sample cuvette in the photometer.
7	Put on the lightshield.
8	Tap TEST to perform the measurement.

(171)

Iron in Oil

20 - 450 mg/l (Fe^{2+})

Internal Name: 171-IronInOil-tab



Measurement procedure:

1	Take a semi-micro vial cuvette and label it as "ZERO".
2	Transfer approx. 1 ml of Reagent S into the cuvette.
3	Place the ZERO cuvette into the cuvette holder of the photometer. Please note: The BRAND logo must be directed to the front/ towards you.
4	Put on the light shield and press "ZERO".
5	Remove the light shield.
6	Remove the cuvette again.
7	SAMPLE TESTING: Label the reaction vials and cuvettes according to the number of samples to be tested (e.g. 1..2..3..).
8	Transfer 10 ml of Reagent W into each reaction vial.
9	Transfer approx. 3 ml of Reagent S into each reaction vial by using a Pasteur pipette.
10	Transfer into each reaction vial individually 0.1 ml of the well mixed cylinder drain oil sample.
11	Transfer 1 Iron-reaction-tablet into each reaction vial.
12	Close the reaction vials.
13	Tap "NEXT" to start a 02:00 minute(s) shake coutdown and shake all reaction vials immediately.
14	Tap "NEXT" to start a 10:00 minute(s) reaction countdown.
15	Shake again all reaction vials. Press "NEXT" to start a 15 second(s) countdown.
16	Wait for the phase separation in the reaction vials.
17	Take about 3.5 ml of the lower magenta (light to strong) coloured phase with a clean 5 ml syringe.
18	At the tip of this syringe, connect a 0.45 µm syringe filter.
19	Filter the magenta solution into a clean cuvette.
20	Insert the cuvette into the cuvette holder of the photometer.
21	Cover with the light shield and press "TEST". Note the Iron value of the sample in mg/l.

(37) Ozone (in absence of chlorine)

Tablet

0.00 - 5.40 mg/l (O_3)

Internal Name: 37-Ozone-tab

DPD N°1 Photometer (TbsPD1)
DPD N°3 Photometer (TbsPD3)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 1 DPD N°1 Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Fill the cuvette to 10 ml with the sample water.
11	Add 1 DPD N°3 Photometer tablet(s) to the test water in the cuvette.
12	Crush the tablet with a clean stirring rod.
13	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
14	Screw the lid back on the cuvette.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 02:00 minute(s) countdown.
17	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- If the sample water contains more than 30 mg/l ozone, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.

- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Make sure no ozone escapes while preparing the sample. The measurement must be performed directly after sampling.
- If the sample water contains further oxidizing agents, these will react like ozone and contribute to the measurement result.

(37) Ozone (in presence of chlorine)

Tablet

0.00 - 5.40 mg/l (O_3)

Internal Name: 37-Ozone-tab

DPD N°1 Photometer (TbsPD1)
DPD N°3 Photometer (TbsPD3)
Glycine (TbsHGC)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 1 DPD N°1 Photometer tablet(s) to the test water in the cuvette.
9	Crush the tablet with a clean stirring rod.
10	Fill the cuvette to 10 ml with the sample water.
11	Add 1 DPD N°3 Photometer tablet(s) to the test water in the cuvette.
12	Crush the tablet with a clean stirring rod.
13	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
14	Screw the lid back on the cuvette.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 02:00 minute(s) countdown.
17	Remove the cuvette again.
18	Clean the cuvette.
19	Fill 10 ml test water into a clean 24 mm cuvette.
20	Add 1 Glycine tablet(s) to the test water in the cuvette.
21	Crush the tablet with a clean stirring rod.
22	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
23	Add 1 DPD N°1 Photomoter tablet(s) to the cleaned cuvette.
24	Add 1 DPD N°3 Photometer tablet(s) to the cleaned cuvette.
25	Crush the tablet with a clean stirring rod.
26	Fill the cuvette with content of the treated sample water from the first cuvette.

27 Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.

28 Screw the lid back on the cuvette.

29 Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.

30 Tap TEST to start a 02:00 minute(s) countdown.

31 After the lapse of a 02:00 minute(s) countdown the total result is displayed, divided in O_3 = "ozone“ and tCl_2 = "total chlorine“.

Notes:

- If the sample water contains further oxidizing agents, these will react like ozone and contribute to the measurement result.
- Make sure no ozone escapes while preparing the sample. The measurement must be performed directly after sampling.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- If the sample water contains more than 30 mg/l ozone, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.

(92) Ozone (in absence of chlorine)

Liquid

0.00 - 2.70 mg/l (O_3)

Internal Name: 92-Ozone-liq

30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD 1 B (PL30DPD1B)
30ml PL DPD 3 C (PL30DPD3C)
30ml PL DPD Glycine (PL30DPDGlycine)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 3 drop(s) of PL DPD 1 A into the cuvette.
9	Add 3 drop(s) of PL DPD 1 B into the cuvette.
10	Add 3 drop(s) of PL DPD 3 C into the cuvette.
11	Then fill 10 ml of the sample water in the cuvette.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to start a 02:00 minute(s) countdown.
16	Wait until the 02:00 minute(s) countdown ran out.

Notes:

- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Make sure no ozone escapes while preparing the sample. The measurement must be performed directly after sampling.
- Shake the liquid reagent thoroughly before adding the liquid to the vial.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- If the sample water contains further oxidizing agents, these will react like ozone and contribute to the measurement result.

- If the sample water contains more than 30 mg/l ozone, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.

(92) Ozone (in presence of chlorine)

Liquid

0.00 - 2.70 mg/l (O_3)

Internal Name: 92-Ozone-liq

30ml PL DPD 1 A (PL30DPD1A)
30ml PL DPD 1 B (PL30DPD1B)
30ml PL DPD 3 C (PL30DPD3C)
30ml PL DPD Glycine (PL30DPDGlycine)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette to a few drops.
8	Add 3 drop(s) of PL DPD 1 A into the cuvette.
9	Add 3 drop(s) of PL DPD 1 B into the cuvette.
10	Add 3 drop(s) of PL DPD 3 C into the cuvette.
11	Fill the cuvette to 10 ml with the sample water.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to start a 02:00 minute(s) countdown.
16	Wait until the 02:00 minute(s) countdown ran out.
17	Unscrew the lid from the cuvette.
18	Empty the cuvette.
19	Clean the cuvette.
20	Fill 10 ml sample water into a second clean 24 mm cuvette.
21	Add 3 drop(s) of PL DPD Glycine into the cuvette.
22	Add 3 drops of PL DPD 1 A into a second clean 24 mm cuvette.
23	Add 3 drop(s) of PL DPD 1 B into the cuvette.
24	Add 3 drop(s) of PL DPD 3 C into the cuvette.
25	Fill the cuvette with the treated sample of the first cuvette.
26	Screw the lid back on the cuvette.

27 Gently swirl the cuvette to mix the liquid well.

28 Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.

29 Tap TEST to start a 02:00 minute(s) countdown.

30 After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- DPD 1 A and DPD 1 B reagent MUST be added to the vial BEFORE water sample is added to avoid misreadings!
- Make sure no ozone escapes while preparing the sample. The measurement must be performed directly after sampling.
- Shake the liquid reagent thoroughly before adding the liquid to the vial.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- If the sample water contains further oxidizing agents, these will react like ozone and contribute to the measurement result.
- If the sample water contains more than 30 mg/l ozone, a measured value of 0 mg/l can be displayed. In that case, a dilution is recommended.
- Turbidity caused by high concentration of calcium ions will affect the measurement result. To prevent that, please use DPD HC (High Calcium) reagents.
- Do not clean glassware and equipment with household detergents, as these could greatly reduce the measurement result. To prevent any contamination, the cuvette, lid and stirrer should be stored in a 0.1 % sodium hypochlorite solution for one hour. Then rinse with distilled water, thoroughly.
- The DPD reagent buffers the pH value of the sample water in the range of 6.2 to 6.5, which is essential for colour development. If the sample water is very alkaline or acidic, this must be adjusted to a pH within the range of 6 to 7 by addition of 0.5 mol/l sulphuric acid or 1 mol/l caustic soda, respectively, before the DPD reagent is added.

(164)

Tablet

Peracetic Acid LR

0.00 - 10.00 mg/l (PAA)

Internal Name: 164-Peracetic-Acid-LR

DPD N°4 Photometer (TbsPD4)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 DPD N°4 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	The measured value is immediately displayed.

Notes:

- Please use caution to not extend the countdown time.
- Repeating the test with the same sample (repeat button) will result in different readings as the reagents will keep reacting.
- If the sample water contains further oxidizing agents, these will react like chlorine and contribute to the measurement result.

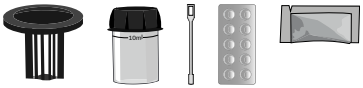
(165)

Powder Pack

Peracetic Acid HR

0.0 - 300.0 mg/l (PAA)

Internal Name: 165-Peracetic-Acid-HR



Chlorine HR (KI) Photometer (PPPClHR)
Acidifying GP (PPHAFG)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Chlorine HR (KI) Photometer powder pillow to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	Add 1 Acidifying GP powder pillow to the sample water in the cuvette.
10	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to perform the measurement.
15	The measured value is immediately displayed.

Notes:

- Repeating the test with the same sample (repeat button) will result in different readings as the reagents will keep reacting.
- All oxidizing substances in the water sample, such as chlorine, active oxygen, bromine, will also be detected and contribute to the result.

(159)

Liquid

Permanganate Time Test

0 - 100 %T (PTT)

Internal Name: 159-PTT-tab

Potassium Permanganate Solution (PL10PTT)

Measurement procedure:

1	Set the refrigerator to 15 °C using the thermostat and according to the instructions.
2	Fill 10 ml test water into a clean 24 mm cuvette.
3	Screw the lid back on the cuvette.
4	Place the cuvette in the refrigerator for 20 minute(s).
5	Place the sealed "Methanol ZERO" cuvette in the photometer.
6	Start ZERO measurement.
7	Remove the cuvette from the photometer and set it aside. It is no longer required for this test.
8	Remove the cuvette from the refrigerator.
9	Add exactly 35 µl of Potassium Permanganate Solution to the sample water into the same cuvette. Use a 10-100 µl pipette.
10	Screw the lid back on the cuvette.
11	Place the cuvette in the refrigerator for 10 minute(s).
12	Tap TEST to start a 10:00 minute(s) countdown.
13	Remove the cuvette from the refrigerator.
14	Wipe the condensation water from the cuvette with a dry cloth.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to perform the measurement.

Notes:

- After adding the PTT-liquid, sample is highly sensitive to light, air and temperature. Do NOT open the vial after PTT-liquid has been added and lid got screwed on and keep it at constant temperature of 15 °C.
- Interferences: Turbid and/or colored water samples (before adding PTT liquid).

(38)

Tablet

pH-value MR

6.40 - 8.40 (pH)

Internal Name: 38-pH-MR-tab

Phenol Red Photometer (TbsPph)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Phenol Red Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	The measured value is immediately displayed.

Notes:

- PH value out of the range of pH 6.5 to 8.4 can lead to incorrect test results. If you are not sure, a control measurement by pH electrode is recommended.
- An alkalinity level > 40 mg/l $CaCO_3$ is required to prevent inaccurate readings.
- Depending on the salt content of the water sample, the measurement result must be manually corrected according to the following scheme: 1 molar = -0.21 pH; 2 molar = -0.26 pH; 3 molar = -0.29 pH with: 1 mol of salt (NaCl) = 5.8 % = 58.4 g/l.

(39)

Liquid

pH-value MR

6.40 - 8.40 (pH)

Internal Name: 39-pH-MR-liq

65ml PL pH 6.5 - 8.4 (PL65PhenRed)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 6 drop(s) of PL pH 6.5-8.4 into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to perform the measurement.
12	The measured value is immediately displayed.

Notes:

- PH value out of the range of pH 6.5 to 8.4 can lead to incorrect test results. If you are not sure, a control measurement by pH electrode is recommended.
- High chlorine values can lead to incorrect test results. Add small amounts of sodium thiosulfate before adding the liquid reagent.
- Make sure the liquid reagent drops are of equal size.
- Liquid reagents should be stored at temperatures of 5 - 10 °C in securely closed bottles.
- Shake the liquid reagent thoroughly before adding the liquid to the vial.
- An alkalinity level > 40 mg/l $CaCO_3$ is required to prevent inaccurate readings.

(40)

Tablet

pH-value LR

5.20 - 6.80 (pH)

Internal Name: 40-pH-LR-tab

pH-LR Photometer (TbsPpHLR)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 pH LR Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to perform the measurement.
14	The measured value is immediately displayed.

Notes:

- PH values out of the range of pH 5.2 to 6.8 can lead to incorrect test results. If you are not sure, a control measurement by pH electrode is recommended.
- Depending on the salt content of the water sample, the measurement result must be manually corrected according to the following scheme: 1 molar = -0.26 pH; 2 molar = -0.33 pH; 3 molar = -0.31 pH with: 1 mol of salt (NaCl) = 5.8 % = 58.4 g/l.

(41)

Tablet

pH Universal

5.0 - 11.0 (pH Univ)

Internal Name: 41-pH-univ-tab

Universal pH Photometer (TbsPUPH)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Universal pH Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	The measured value is immediately displayed.

Notes:

- PH values out of the range of pH 5 to 11 can lead to incorrect test results. If you are not sure, a control measurement by pH electrode is recommended.

(42)

Liquid

pH Universal

4.0 - 11.0 (pH Univ)

Internal Name: 42-pH-univ-liq

65ml PL pH 4-11 (PL65UnivpH)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 10 drop(s) of PL pH 4-11 into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to perform the measurement.
12	The measured value is immediately displayed.

Notes:

- Use of this test procedure and reagent on water samples with pH valueoutside of the 4-11 range can lead to incorrect test results. If you are not surewe recommend a control measurement using e.g. an electronic meter (pH 0-14).

(98)

Tablet

Phenol

0.00 - 5.00 mg/l (C_6H_5OH)

Internal Name: 98-Phenol-tab

Phenol N°1 Photometer (TbsHPhen1)
Phenol N°2 Photometer (TbsPPhen2)
Phenol N°3 Photometer (TbsPPhen3)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Phenol N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Add 1 Phenol N°2 Photometer tablet(s) to the test water in the cuvette.
11	Crush the tablet with a clean stirring rod.
12	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 10:00 minute(s) countdown.
17	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- If your sample does contain copper, zinc, iron or manganese ions (up to 350 mg/l) add one Phenol CR tablet after ZERO. Crush and mix to dissolve.
- Level of > 20 mg/l hydrogen peroxide interfere with this test and can influence the reading.
- High (free) chlorine levels (> 10 mg/l) interfere with this test and can influence the reading.
- Alkalinity above 150 mg/l $CaCO_3$ as well as sulphite above 10 mg/l or more than 2 mg/l sulphide will interfere with this test and can influence the reading.
- Some organic keto-enol compounds can lead to high readings.

(43)

Tablet

PHMB

2 - 60 mg/l (PHMB)

Internal Name: 43-PHMB-tab

PHMB Photometer (TbsPPB)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 PHMB Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to perform the measurement.
14	The measured value is immediately displayed.

Notes:

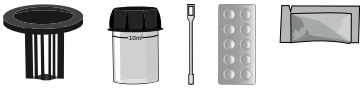
- All equipment (cuvette, lid, stirrer) needs to be cleaned carefully after testing. Use a brush, clear water and then distilled water, as otherwise the test kit will discolour over time. If a blue colour remains, clean with Ethanol.
- The test result is influenced by total alkalinity and hardness. The calibration of this method was performed by using water with the following characteristics: i) Calcium hardness: 200 mg/l $CaCO_3$, ii) Total alkalinity: 120 mg/l $CaCO_3$.

(44) Phosphate (-ortho-) LR

Powder Pack + Tablet

0.00 - 4.00 mg/l (PO_4^{3-})

Internal Name: 44-Phosphat-LR-tab



Phosphate LR N°1 Photometer (PPHPPLR1)
Phosphate LR N°2 Photometer (TbsPPPLR2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Phosphate LR N°1 Photometer powder pillow to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	Add 1 Phosphate LR N°2 Photometer tablet(s) to the test water in the cuvette.
10	Crush the tablet with a clean stirring rod.
11	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to start a 10:00 minute(s) countdown.
16	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l P, mg/l P_2O_5.
- With this procedure ortho-phosphate ions are detected. Other phosphates/phosphonates must therefore be converted into ortho-phosphates before the test is begun.
- The pH value of the sample water should be between 6 and 7.
- The following contents of substances in the sample water can - at the respective concentration - falsify the measurement results: Chromium (> 100 mg/l), copper (> 10 mg/l), iron (> 100 mg/l), nickel (> 300 mg/l), zinc (> 80 mg/l).

(45) Phosphate (-ortho-) LR

Liquid + Powder

0.00 - 4.00 mg/l (PO_4^{3-})

Internal Name: 45-Phosphat-LR-liq

65ml PL Phosphate LR N°1 (PL65PPLR1)
PL Phosphate LR 2 (PLpow20PPLR2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 25 drop(s) of PL Phosphate LR 1 into the cuvette.
8	Add 1 x 0.05 ml PL Phosphate LR 2 scoop(s) powder to the sample water in the cuvette.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l P, mg/l P_2O_5.
- With this procedure ortho-phosphate ions are detected. Other phosphates/phosphonates must therefore be converted into ortho-phosphates before the test is begun.
- The pH value of the sample water should be between 6 and 7.
- The following contents of substances in the sample water can - at the respective concentration - falsify the measurement results: Chromium (> 100 mg/l), copper (> 10 mg/l), iron (> 100 mg/l), nickel (> 300 mg/l), zinc (> 80 mg/l).

(46) Phosphate (-ortho-) HR

0.0 - 80.0 mg/l (PO_4^{3-})

Powder Pack + Tablet

Internal Name: 46-Phosphat-HR-tab

Phosphate HR N°1
Photometer (PPHPPHR1)
Phosphate HR N°2
Photometer (TbsPPPHR2)

Measurement procedure:

1	Separate the two halves of the filter holder.
2	Insert a 25 mm (GF/C) filter. Screw the filter holder back together, making sure that the O-ring is correctly seated.
3	Fill a clean 20 ml syringe with 14 ml sample water.
4	Connect the syringe to the filter holder.
5	Empty the syringe with the filter up to the 10 ml mark.
6	Fill the remaining 10 ml filtered sample water into a clean 24 mm cuvette.
7	Screw the lid back on the cuvette.
8	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
9	Start ZERO measurement.
10	Remove the cuvette again.
11	Unscrew the lid from the cuvette.
12	Add 1 Phosphate HR N°1 Photometer" powder pillow to the sample water in the cuvette.
13	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
14	Add 1 Phosphate HR N°2 Photometer tablet(s) to the test water in the cuvette.
15	Crush the tablet with a clean stirring rod.
16	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
17	Screw the lid back on the cuvette.
18	Gently swirl the cuvette to mix the liquid well.
19	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
20	Tap TEST to perform the measurement.
21	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- Special accessories required / not included as standard equipment!
- The test result can be converted into the following unit(s): mg/l P, mg/l P_2O_5.

- Filter process is only needed in case of any suspended insoluble phosphate expected in your water sample (applicable for boiler water testing)
- With this procedure ortho-phosphate ions are detected. Other phosphates/phosphonates must therefore be converted into ortho-phosphates before the test is begun.
- The pH value of the sample water should be between 6 and 7.
- The following contents of substances in the sample water can - at the respective concentration - falsify the measurement results: Chromium (> 100 mg/l), copper (> 10 mg/l), iron (> 100 mg/l), nickel (> 300 mg/l), zinc (> 80 mg/l).

(47) Phosphate (-ortho-) HR

Liquid

0.0 - 100.0 mg/l (PO_4^{3-})

Internal Name: 47-Phosphat-HR-liq

65ml PL Phosphate HR N°1 (PL65PPHR1)
65ml PL Phosphate HR N°2 (PL65PPHR2)

Measurement procedure:

1	Separate the two halves of the filter holder.
2	Insert a 25 mm (GF/C) filter. Screw the filter holder back together, making sure that the O-ring is correctly seated.
3	Fill a clean 20 ml syringe with 14 ml sample water.
4	Connect the syringe to the filter holder.
5	Empty the syringe with the filter up to the 10 ml mark.
6	Fill the remaining 10 ml filtered sample water into a clean 24 mm cuvette.
7	Screw the lid back on the cuvette.
8	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
9	Start ZERO measurement.
10	Remove the cuvette again.
11	Unscrew the lid from the cuvette.
12	Add 25 (~ 1 ml) drop(s) of PL Phosphate HR 1 into the cuvette.
13	Add 25 (~ 1 ml) drop(s) of PL Phosphate HR 2 into the cuvette.
14	Screw the lid back on the cuvette.
15	Gently swirl the cuvette to mix the liquid well.
16	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
17	Tap TEST to perform the measurement.
18	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- Special accessories required / not included as standard equipment!
- The test result can be converted into the following unit(s): mg/l P, mg/l P_2O_5.
- Filter process is only needed in case of any suspended insoluble phosphate expected in your water sample (applicable for boiler water testing)
- With this procedure ortho-phosphate ions are detected. Other phosphates/phosphonates must therefore be converted into ortho-phosphates before the test is begun.

- The pH value of the sample water should be between 6 and 7.
- The following contents of substances in the sample water can - at the respective concentration - falsify the measurement results: Chromium (> 100 mg/l), copper (> 10 mg/l), iron (> 100 mg/l), nickel (> 300 mg/l), zinc (> 80 mg/l).

(87)

Powder Can + Liquid

Phsphonate

0.0 - 20.0 mg/l (PO_4^{3-})

Internal Name: 87-Phosphonate-liq

20g PL Phosphonate N°1 (PLpow20PPHON1)
20g PL Phosphonate N°2 (PLpow20PPHON2)
65ml PL Phosphonate N°3 (PL65PPHON3)
20g PL Phosphonate N°4 (PLpow20PPHON4)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 x 0.05 ml PL Phosphonate 1 scoop(s) powder to the sample water in the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Tap TEST to start a 05:00 minute(s) countdown.
11	The cuvette does not need to be placed in the device during this time.
12	Remove the cuvette again.
13	Unscrew the lid from the cuvette.
14	Add 1 x 0.05 ml PL Phosphonate 2 scoop(s) powder to the sample water in the cuvette.
15	Screw the lid back on the cuvette.
16	Gently swirl the cuvette to mix the liquid well.
17	Tap TEST to start a 02:00 minute(s) countdown.
18	The cuvette does not need to be placed in the device during this time.
19	Remove the cuvette again.
20	Unscrew the lid from the cuvette.
21	Fill the 20 ml filter syringe (clean and residue-free) with the sample water from the cuvette just used.
22	Separate the two halves of the filter holder.
23	Insert a (GF/C) filter. Screw the filter holder back together, making sure that the O-ring is correctly seated.
24	Screw the filter adapter prepared by steps 1 and 2 onto the syringe.

25	Press the 10 ml prepared sample liquid in the filter syringe through the filter adapter into a clean 24 mm cuvette.
26	Add 10 drop(s) of PL Phosphonate 3 into the cuvette.
27	Screw the lid back on the cuvette.
28	Gently swirl the cuvette to mix the liquid well.
29	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
30	Tap TEST to perform the measurement.
31	The measured value for tPO_4^{3-} (Organophosphnates and phosphates as PO_4^{3-}) is immediately displayed.
32	Remove the cuvette from the photometer and set it aside. It is no longer required for this test.
33	Fill 8 ml of distilled water into a clean 24 mm cuvette.
34	Add exactly 2 ml sample water to the same cuvette.
35	Screw the lid back on the cuvette.
36	Swivel the cuvette back and forth for 5 times.
37	Unscrew the lid from the cuvette.
38	Add 10 drop(s) of PL Phosphonate 3 into the cuvette.
39	Add 1 x 0.05 ml PL Phosphonate 4 scoop(s) powder to the sample water in the cuvette.
40	Screw the lid back on the cuvette.
41	Gently swirl the cuvette to mix the liquid well.
42	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
43	Tap TEST to start a 10:00 minute(s) countdown.
44	After the lapse of a 10:00 minute(s) countdown the total result is displayed, divided in tPO_4^{3-} = "Organophosphonate + Phosphate as PO_4^{3-}" ; PO_4^{3-} = "Phosphate as PO_4^{3-}" ; PO_4^{3-} org. = "Organophosphonate as PO_4^{3-}".

Notes:

- Special accessories required / not included as standard equipment!
- The test result can be displayed as PBTC, NTP, HEDPA, EDTMPA, HMDTMPA, DETPMPA, HPA.
- With this procedure ortho-phosphate ions are detected. Other phosphates/phosphonates must therefore be converted into ortho-phosphates before the test is begun.
- The pH value of the sample water should be between 6 and 7.

(110)

Tablet

Phosphonate

0.0 - 20.0 mg/l (PO_4^{3-})

Internal Name: 110-Phosphon-tab

Oxidising OP Photometer (TbsHOXOP)
OP-A Photometer (TbsPOPA)
OP-B Photometer (TbsPOPB)
OP-AX Photometer (TbsHOPAX)

Measurement procedure:

1	Fill 8 ml of distilled water into a clean 24 mm cuvette.
2	Add exactly 2 ml sample water to the same cuvette.
3	Screw the lid back on the cuvette.
4	Swivel the cuvette back and forth for 5 times.
5	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
6	Start ZERO measurement.
7	Remove the cuvette again.
8	Unscrew the lid from the cuvette.
9	Add 1 OrgaPhos-OX tablet(s) to the test water in the cuvette.
10	Crush the tablet with a clean stirring rod.
11	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Tap TEST to start a 05:00 minute(s) countdown.
15	The cuvette does not need to be placed in the device during this time.
16	Remove the cuvette again.
17	Unscrew the lid from the cuvette.
18	Add 1 OrgaPhos No.1 tablet(s) to the test water in the cuvette.
19	Crush the tablet with a clean stirring rod.
20	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
21	Screw the lid back on the cuvette.
22	Gently swirl the cuvette to mix the liquid well.
23	Tap TEST to start a 02:00 minute(s) countdown.
24	The cuvette does not need to be placed in the device during this time.
25	Remove the cuvette again.
26	Unscrew the lid from the cuvette.

27	Fill the 20 ml filter syringe (clean and residue-free) with the sample water from the cuvette just used.
28	Separate the two halves of the filter holder.
29	Insert a filter. Screw the filter holder back together, making sure that the O-ring is correctly seated.
30	Screw the filter adapter prepared by steps 28 and 29 onto the syringe.
31	Press the 10 ml prepared sample liquid in the filter syringe through the filter adapter into a clean 24 mm cuvette.
32	Add 1 OrgaPhos No.2 tablet(s) to the test water in the cuvette.
33	Crush the tablet with a clean stirring rod.
34	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
35	Screw the lid back on the cuvette.
36	Gently swirl the cuvette to mix the liquid well.
37	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
38	Tap TEST to start a 05:00 minute(s) countdown.
39	After the lapse of a 05:00 minute(s) countdown the total result is displayed, divided in tPO_4^{3-} (=Organophosphonate + Phosphate as PO_4^{3-}).
40	Remove the cuvette from the photometer and set it aside. It is no longer required for this test.
41	Fill 8 ml of distilled water into a clean 24 mm cuvette.
42	Add exactly 2 ml sample water to the same cuvette.
43	Add 1 OrgaPhos No.3 tablet(s) to the test water in the cuvette.
44	Crush the tablet with a clean stirring rod.
45	Add 1 OrgaPhos No.2 tablet(s) to the test water in the cuvette.
46	Crush the tablet with a clean stirring rod.
47	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
48	Screw the lid back on the cuvette.
49	Gently swirl the cuvette to mix the liquid well.
50	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
51	Tap TEST to start a 05:00 minute(s) countdown.
52	After the lapse of a 05:00 minute(s) countdown the total result is displayed, divided in tPO_4^{3-} = "Organophosphonate + Phosphate as PO_4^{3-}" ; PO_4^{3-} = "Phosphate as PO_4^{3-}" ; PO_4^{3-} org. = "Organophosphonate as PO_4^{3-}".

Notes:

- Special accessories required / not included as standard equipment!
- The test result can be displayed as PBTC, NTP, HEDPA, EDTMPA, HMDTMPA, DETPMPA, HPA.
- The pH value of the sample water should be between 6 and 7.

(153)

Powder Pack
+ Tablet

Phosphorus-total LR

0.00 - 2.60 mg/l (P)

Internal Name: 153-PsphrTotLR-tab

Phosphate LR N°1 Photometer (PPHPPLR1)
Phosphate LR N°2 Photometer (TbsPPPLR2)

Measurement procedure:

1	Fill 5 ml sample water in a fresh, clean Phosphorus LR cuvette.
2	Add 2 x 0.05 ml PL Phosphorus 2 to the test water in the cuvette.
3	Screw the lid back on the cuvette IMMEDIATELY.
4	Shake the cell vigorously for 00:20 minute(s).
5	Tap TEST to start a 00:20 minute(s) countdown.
6	Place cuvettes for 30 minutes at 150 °C in the preheated thermoreactor.
7	Tap TEST to start a 30:00 minute(s) countdown.
8	CAUTION: Cuvettes are hot!
9	Remove the cuvettes from the thermoreactor.
10	Let the cuvettes cool down to at least 60 °C.
11	Add 10 drop(s) of PL Phosphorus LR1 into the cuvette.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid with the reagent.
14	Place the 16 mm adapter in the photometer.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Start ZERO measurement.
17	Remove the cuvette again.
18	Unscrew the lid from the cuvette.
19	Add 1 Phosphate LR N°1 Photometer powder pillow to the sample water in the cuvette.
20	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
21	Add 1 Phosphate LR N°2 Photometer tablet(s) to the test water in the cuvette.
22	Crush the tablet with a clean stirring rod.
23	Screw the lid back on the cuvette.
24	Gently swirl the cuvette to mix the liquid well.
25	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
26	Tap TEST to perform the measurement.

27 After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l PO_4^{3-}.
- Remove powder from vial edges, lid and tube threads after adding powder.
- The pH value of the sample water should be between 6 and 7.
- The following contents of substances in the sample water can - at the respective concentration - falsify the measurement results: Chromium (> 100 mg/l), copper (> 10 mg/l), iron (> 100 mg/l), nickel (> 300 mg/l), zinc (> 80 mg/l).

(154)

Powder Pack
+ Tablet

Phosphorus-total HR

0.0 - 52.0 mg/l (P)

Internal Name: 154-PsphrTotHR-tab

Phosphate HR N°1
Photometer (PPHPPHR1)
Phosphate HR N°2
Photometer (TbsPPPHR2)

Measurement procedure:

1	Fill 5 ml sample water in a fresh, clean Phosphorus HR cuvette.
2	Add 2 x 0.05 ml PL Phosphorus 2 to the test water in the cuvette.
3	Screw the lid back on the cuvette IMMEDIATELY.
4	Shake the cell vigorously for 00:20 minute(s).
5	Tap TEST to start a 00:20 minute(s) countdown.
6	Place cuvettes for 30 minutes at 150 °C in the preheated thermoreactor.
7	Tap TEST to start a 30:00 minute(s) countdown.
8	CAUTION: Cuvettes are hot!
9	Remove the cuvettes from the thermoreactor.
10	Let the cuvettes cool down to at least 60 °C.
11	Add 10 drop(s) of PL Phosphorus HR1 into the cuvette.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid with the reagent.
14	Place the 16 mm adapter in the photometer.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Start ZERO measurement.
17	Remove the cuvette again.
18	Unscrew the lid from the cuvette.
19	Add 1 Phosphate HR 1 powder pillow to the sample water in the cuvette.
20	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
21	Add 1 Phosphate HR 2 tablet(s) to the test water in the cuvette.
22	Crush the tablet with a clean stirring rod.
23	Screw the lid back on the cuvette.
24	Gently swirl the cuvette to mix the liquid well.
25	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
26	Tap TEST to perform the measurement.

27 After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l PO_4^{3-}.
- Remove powder from vial edges, lid and tube threads after adding powder.
- The pH value of the sample water should be between 6 and 7.
- The following contents of substances in the sample water can - at the respective concentration - falsify the measurement results: Chromium (> 100 mg/l), copper (> 10 mg/l), iron (> 100 mg/l), nickel (> 300 mg/l), zinc (> 80 mg/l).

(85)

Liquid

Polyacrylate

1.0 - 30.0 mg/l (Polyac.)

Internal Name: 85-Polyacryl-liq

65ml PL Polyacrylate N°1 (PL65PLYA1)
65ml PL Polyacrylate N°2 (PL65PLYA2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 25 drop(s) of PL Polyacrylate 1 into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Unscrew the lid from the cuvette.
11	Add 25 drop(s) of PL Polyacrylate 2 into the cuvette.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to perform the measurement.
16	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- If unexpected / inconsistent test results appear, this can be due to a contamination of the sample or to confounding factors in the sample water. Ask the suppliers of this set for a detailed statement to eliminate interference factors in the water sample.

(48)

Tablet

Potassium

0.7 - 12.0 mg/l (K)

Internal Name: 48-Potassium-tab

Potassium Photometer (TbsPPTST)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Potassium Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to perform the measurement.
14	The measured value is immediately displayed.

Notes:

- Addition of the "Potassium Photometer" tablet will cause a cloudy solution.

(111)

PTSA

0 - 1000 µg/l (PTSA)

Internal Name: 111-PTSA-Ad

Measurement procedure:

1	Fill 10 ml distilled water in a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette.
8	Rinse the cuvette with the test water.
9	Fill 10 ml test water into a clean 24 mm cuvette.
10	Screw the lid back on the cuvette.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	The measured value is immediately displayed.

Notes:

- Turbidity in samples may affect the PTSA result. Filter any turbid samples using GF/C filter paper before commencing PTSA measurement.
- Ensure that all parts are clean, dry and free of grease and the adapter must be placed firmly until it stops.
- One of the following reasons might cause faulty readings: i) Cuvette adapter is not seated correctly, ii) Water sample might be too dark / not enough light can pass sample to reach the sensor.

(156)

Watch Products

0 - 1000 µg/l (Watch)

Internal Name: 156-Watch-Ad

Measurement procedure:

1	Fill 10 ml distilled water in a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette.
8	Rinse the cuvette with the test water.
9	Fill 10 ml test water into a clean 24 mm cuvette.
10	Screw the lid back on the cuvette.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	The measured value is immediately displayed.

(157)

TRACER

0 - 1000 µg/l (TraceR)

Internal Name: 157-TraceR-Ad

Measurement procedure:

1	Fill 10 ml distilled water in a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette.
8	Rinse the cuvette with the test water.
9	Fill 10 ml test water into a clean 24 mm cuvette.
10	Screw the lid back on the cuvette.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	The measured value is immediately displayed.

Notes:

- It is essential to always ensure the correct amount of water in the cell, which is why exactly 10 ml of liquid should be taken by the pipette for the subsequent sample measurement. Please change or clean the tip of the pipette after each measurement/calibration.

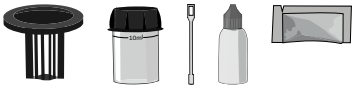
(49)

Liquid
+ Powder Pack

Silica LR

0.00 - 5.00 mg/l (SiO_2)

Internal Name: 49-Silica-LR-liq



25ml PL Silica LR N°1 (PL25SilLR1)
25ml PL Silica LR N°2 (PL25SilLR2)
Silica N°3 Photometer (PPPSilLR3)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 10 drop(s) of PL Silica LR 1 into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Tap Next to start a 03:00 minute(s) countdown.
11	Wait until the 03:00 minute(s) countdown ran out.
12	Unscrew the lid from the cuvette.
13	Add 10 drop(s) of PL Silica No.2 into the cuvette.
14	Screw the lid back on the cuvette.
15	Gently swirl the cuvette to mix the liquid well.
16	Tap NEXT to start a 03:00 minute(s) countdown.
17	Wait until the 03:00 minute(s) countdown ran out.
18	Unscrew the lid from the cuvette.
19	Add 1 Silica LR No.3 powder pillow to the sample water in the cuvette.
20	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
21	Gently swirl the cuvette to mix the liquid well.
22	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
23	Tap TEST to perform the measurement.
24	After the lapse of a 03:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l Si
- The temperature of the water sample must be between 20 °C and 30 °C to ensure precise measurements.

(50)

Powder Can

Silica HR

0 - 100 mg/l (SiO_2)

Internal Name: 50-Silica-HR-pow

20g PL Silica HR N°1 (PLpow20SilHR1)
60g PL Silica HR N°2 (PLpow60SilHR2)
10g PL Silica HR N°3 (PLpow10SilHR3)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 2 x 0.05 ml PL Silica HR 1 scoop(s) powder to the sample water in the cuvette.
8	Add 4 x 0.05 mL PL Silica HR 2 scoop(s) powder to the sample water in the cuvette.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to start a 10:00 minute(s) countdown.
13	Wait until the 10:00 minute(s) countdown ran out.
14	Remove the cuvette again.
15	Unscrew the lid from the cuvette.
16	Add 1 x 0.05 ml PL Silica HR 3 scoop(s) powder to the sample water in the cuvette.
17	Screw the lid back on the cuvette.
18	Gently swirl the cuvette to mix the liquid well.
19	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
20	Tap TEST to perform the measurement.
21	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l Si
- The temperature of the water sample must be between 15 °C and 25 °C to ensure precise measurements.

- Sulfide in the water sample will influence the measurement result.
- Larger amounts of iron falsify the measurement result.
- Phosphate content in the water higher than 60 mg/l will falsify the measurement result.

(51)

Powder Pack

Sodium Hypochlorite

0.2 - 40.0 % (NaOCl)

Internal Name: 51-Sodium-Hypo-tab

Chlorine HR (KI) Photometer (PPPClHR)
Acidifying GP (PPHAFG)

Measurement procedure:

1	Rinse a dosing syringe several times with the sample water.
2	Fill 5 ml into a clean measuring cup (100 ml).
3	Fill 95 ml distilled water in the same measuring cup.
4	Stir with a clean stirring rod.
5	Rinse a clean syringe several times with the sample water from step 3.
6	Fill 1 ml sample from the previous step in a second, clean measuring cup.
7	Fill 99 ml distilled water in the second measuring cup.
8	Stir with a clean stirring rod.
9	Fill 10 ml sample water from step 8 into a clean 24 mm cuvette.
10	Screw the lid back on the cuvette.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Start ZERO measurement.
13	Remove the cuvette again.
14	Unscrew the lid from the cuvette.
15	Add 1 Chlorine HR (KI) Photometer powder pillow to the sample water in the cuvette.
16	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
17	Add 1 Acidifying GP powder pillow to the sample water in the cuvette.
18	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
19	Screw the lid back on the cuvette.
20	Gently swirl the cuvette to mix the liquid well.
21	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
22	Tap TEST to perform the measurement.
23	After the lapse of a 00:20 minute(s) countdown the measured value is displayed.

Notes:

- The precision of the test results depends upon the precision of the diluting procedure.

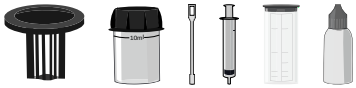
(68)

Liquid

Sodium Hypochlorite

0.2 - 40.0 % (NaOCl)

Internal Name: 68-Sodium-Hypo-liq



65ml PL Chlorine HR N°1 (PL65ClHR1)
65ml PL Chlorine HR N°2 (PL65ClHR2)

Measurement procedure:

1	Rinse a dosing syringe several times with the sample water.
2	Fill 5 ml into a clean measuring cup (100 ml).
3	Fill 95 ml distilled water in the same measuring cup.
4	Stir with a clean stirring rod.
5	Rinse dosing syringe repeatedly with solution from step 3.
6	Remove exactly 1 ml of the sample water.
7	Fill 1 ml sample of step 3 into a clean measuring cup (100 ml).
8	Fill 99 ml distilled water in the second measuring cup.
9	Stir with a clean stirring rod.
10	Fill 10 ml sample water from step 8 into a clean 24 mm cuvette.
11	Screw the lid back on the cuvette.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Start ZERO measurement.
14	Remove the cuvette again.
15	Unscrew the lid from the cuvette.
16	Add 3 drop(s) of PL Chlorine HR 1 into the cuvette.
17	Add 3 drop(s) of PL Chlorine HR 2 into the cuvette.
18	Screw the lid back on the cuvette.
19	Gently swirl the cuvette to mix the liquid well.
20	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
21	Tap TEST to perform the measurement.
22	The measured value is immediately displayed.

Notes:

- The precision of the test results depends upon the precision of the diluting procedure.

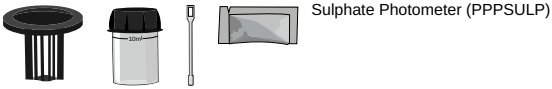
(54)

Powder Pack

Sulphate

5 - 100 mg/l (SO_4^{2-})

Internal Name: 54-Sulphate-tab



Sulphate Photometer (PPPSULP)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Sulphate Photometer powder pillow to the sample water in the cuvette.
8	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	The measured value is immediately displayed.

(55)

Powder Can

Sulphate

5 - 100 mg/l (SO_4^{2-})

Internal Name: 55-Sulphate-pow

10g PL Sulphate N°1 (PLpow10SULPHA1)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 x 0.05 ml PL Sulphate 1 scoop(s) powder to the sample water in the cuvette.
8	Screw the lid back on the cuvette.
9	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
10	Tap TEST to perform the measurement.
11	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

(52)

Tablet

Sulphide

0.04 - 0.50 mg/l (S^{2-})

Internal Name: 52-Sulphide-tab

Sulphide N°1 Photometer (TbsHSULFD1)
Sulphide N°2 Photometer (TbsPSULFD2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Sulphide N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Add 1 Sulphide N° 2 Photometer tablet(s) to the test water in the cuvette.
11	Crush the tablet with a clean stirring rod.
12	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
13	Screw the lid back on the cuvette.
14	Gently swirl the cuvette to mix the liquid well.
15	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
16	Tap TEST to start a 10:00 minute(s) countdown.
17	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l H_2S.
- The temperature of the water sample must be 20 °C to avoid inaccurate measurements.

(140)

Liquid

Sulphide

0.00 - 0.70 mg/l (S^{2-})

Internal Name: 140-Sulphide-Ha

Sulfide 1 (HaSulfide1)
Sulfide 2 (HaSulfide2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 ml of Sulfide 1 to the sample water in the beaker.
8	Add 1 ml of Sulfide 2 to the sample water in the beaker.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
12	Tap TEST to perform the measurement.
13	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l H_2S.
- The temperature of the water sample must be 20 °C to avoid inaccurate measurements.

(53)

Tablet

Sulphite LR

0.0 - 5.0 mg/l (SO_3^{2-})

Internal Name: 53-Sulphite-LR-tab

Sulphite LR Photometer (TbsPSULFTLR)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Sulphite LR Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to perform the measurement.
14	After the lapse of a 05:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l Na_2SO_3.

(105)

Tablet

Sulphite HR

0 - 300 mg/l (Na_2SO_3)

Internal Name: 105-Sulphite-HR-tab

Sulphite HR N°1 Photometer (TbsHSULFHR1)
Sulphite HR N°2 Photometer (TbsPSULFHR2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Sulphite HR N°1 Photometer tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Add 1 Sulphite HR N°2 Photometer tablet(s) to the test water in the cuvette.
10	Crush the tablet with a clean stirring rod.
11	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to start a 02:00 minute(s) countdown.
15	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

Notes:

- The test result can be converted into the following unit(s): mg/l SO_3^{2-}.
- Filter sample if neccessary to test a clear sample.
- Cell, lid and stirring rod need to be cleaned immediately after to prevent staining.
- Expect low results if tannin or tannic acid is present.
- Following substances cause interferences: Chlorine (> 250 mg/l), nitrite (> 200 mg/l), iron (> 20 mg/l), sulphide (> 10 mg/l).

(174)

Liquid

Sulphite HR

0 - 200 mg/l (SO_3^{2-})

Internal Name: 174-Sulphite-HR-liq

PL Oxygen Scavenger 1 (65 ml) (PL65OxyScav1)
PL Oxygen Scavenger 2 (65 ml) (PL65OxyScav2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 3 drop(s) of PL Oxygen Scavenger 1 into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Unscrew the lid from the cuvette.
11	Add 3 drop(s) of PL Oxygen Scavenger 2 into the cuvette.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
15	Tap TEST to perform the measurement.
16	After the lapse of a 02:00 minute(s) countdown the measured value is displayed.

(81)

Suspended Solids

0 - 750 mg/l (TSS)

Internal Name: 81-Suspended-Sol

Measurement procedure:

1	Mix a larger amount of test water (> 0.5 litres) in a mixer at the highest level for at least 2 minute(s).
2	Fill 10 ml distilled water in a clean 24 mm cuvette.
3	Screw the lid back on the cuvette.
4	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
5	Start ZERO measurement.
6	Remove the cuvette again.
7	Unscrew the lid from the cuvette.
8	Empty the cuvette.
9	Mix the sample thoroughly.
10	Rinse the cuvette several times with the sample water.
11	Then fill 10 ml of the sample water in the cuvette.
12	Screw the lid back on the cuvette.
13	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
14	Tap TEST to perform the measurement.
15	The measured value is immediately displayed.

Notes:

- To get a more accurate indication of the measured value, a gravimetrical determination is necessary. Here, the water sample is filtered and the residue evaporated at about 100 °C and weighed.
- Perform the measurement immediately after extraction of the water sample. Otherwise, keep the sample no longer than seven days in a closed glass or plastic container at max. 4 °C.

(91)

Liquid

Tannic acid

0 - 200 mg/l (Tan. Ac.)

Internal Name: 91-Tannic-acid-liq

65ml PL Tannin N°1 (PL65Tannin1)
30ml PL Tannin N°2 (PL30Tannin2)

Measurement procedure:

1	Fill 9 ml distilled water in a clean 24 mm cuvette.
2	Fill 1 ml sample water in the same cuvette.
3	Screw the lid back on the cuvette.
4	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
5	Start ZERO measurement.
6	Remove the cuvette again.
7	Unscrew the lid from the cuvette.
8	Add 25 drop(s) of PL Tannin 1 into the cuvette.
9	Add 6 drop(s) of PL Tannin 2 into the cuvette.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to perform the measurement.
14	After the lapse of a 20:00 minute(s) countdown the measured value is displayed.

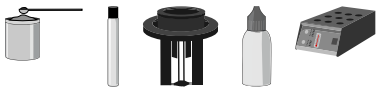
(197)

Liquid
+ Powder Can
+ Reagent-Kit

Total Organic Carbon LR

5 - 80 mg/l (TOC)

Internal Name: 197-TOC LR



TOC-1K (TOC-1K)
TOC-2K (TOC-2K)
TOC LR Kit (PL197-Kit)

Measurement procedure:

1	Prepare two clean suitable glass vessels and label one as ZERO vessel.
2	Fill 25 ml distilled water in the ZERO vessel.
3	Fill 25 ml sample water in the sample vessel.
4	Add 3 drops of TOC-1K into both vessels and mix them.
5	Stir for 10 minutes at a medium speed.
6	Prepare 2 TOC LR cuvettes (16mm). Label one as ZERO cuvette.
7	Unscrew the plastic caps from both cuvettes.
8	Fill 3ml pretreated distillied water into the ZERO cuvette.
9	Fill 3ml pretreated sample water into the sample cuvette
10	Add a level microspoonful of TOC-2K to each cuvette.
11	Close the cuvettes immediately with the alu caps.
12	Place cuvettes upside down for 120 minutes at 120°C in the preheated thermoreactor.
13	CAUTION: Cuvettes are hot!
14	Remove the cuvettes from the thermoreactor.
15	Let the cuvettes cool down upside down for 1 hour. Do not cool them with water!
16	Place the 16 mm adapter in the photometer.
17	Place the ZERO cuvette in the photometer.
18	Put on the lightshield.
19	Start ZERO measurement.
20	Remove the lightshield.
21	Remove the cuvette again.
22	Insert the sample cuvette in the photometer.
23	Put on the lightshield.
24	Tap TEST to perform the measurement.
25	The measured value is immediately displayed.

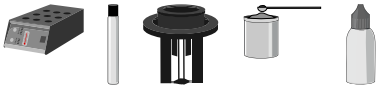
(198)

Powder Can
+ Liquid
+ Reagent-Kit

Total Organic Carbon HR

50 - 800 mg/l (TOC)

Internal Name: 198-TOC HR



TOC-2K (TOC-2K)
TOC-1K (TOC-1K)
TOC HR Kit (PL198-Kit)

Measurement procedure:

1	Prepare two clean suitable glass vessels and label one as ZERO vessel.
2	Fill 10 ml distilled water in the ZERO vessel.
3	Fill 1 ml sample water and 9 ml distilled water in the sample vessel.
4	Add 2 drops of TOC-1K into both vessels and mix them.
5	Stir for 10 minutes at a medium speed.
6	Prepare 2 TOC HR cuvettes (16mm). Label one as ZERO cuvette.
7	Unscrew the plastic caps from both cuvettes.
8	Fill 3ml pretreated distillied water into the ZERO cuvette.
9	Fill 3ml pretreated sample water into the sample cuvette
10	Add a level microspoonful of TOC-2K to each cuvette.
11	Close the cuvettes immediately with the alu caps.
12	Place cuvettes upside down for 120 minutes at 120°C in the preheated thermoreactor.
13	CAUTION: Cuvettes are hot!
14	Remove the cuvettes from the thermoreactor.
15	Let the cuvettes cool down upside down for 1 hour. Do not cool them with water!
16	Place the 16 mm adapter in the photometer.
17	Place the ZERO cuvette in the photometer.
18	Put on the lightshield.
19	Start ZERO measurement.
20	Remove the lightshield.
21	Remove the cuvette again.
22	Insert the sample cuvette in the photometer.
23	Put on the lightshield.
24	Tap TEST to perform the measurement.
25	The measured value is immediately displayed.

(170)

Transmission

0.0 - 100.0 % (Trnsm)

Internal Name: 170-Transmission

Measurement procedure:

1	Select the desired wavelength.
2	Fill 10 ml test water into a clean 24 mm cuvette.
3	Screw the lid back on the cuvette.
4	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
5	Start ZERO measurement.
6	Remove the cuvette again.
7	Treat the water sample according to the chosen procedure.
8	Fill 10 ml of the treated water sample into a clean 24 mm cuvette.
9	Screw the lid back on the cuvette.
10	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
11	Tap TEST to perform the measurement.
12	The measured value is immediately displayed.

Notes:

- With this method you can create your own parameters, use reagents from other manufacturers and/or perform measurements with the PrimeLab that are not included in the offered IDs/ parameters.This requires that you familiarize yourself with the colorimetry of the water sample AFTER addition of the reagent that you want to use. Select the wavelength of your sample after addition of the reagent to be used by selecting the closest colour match (see also www.primelab.org).At the end of measurement you will receive a value for the "Transmission". "Transmission" in % means how much light reaches the sensor (in %), compared to ZERO measurement (T = 100%). After adding a colouring reagent, transmission will decrease.Simply measure several water samples with different concentrations of the parameter of interest on one wavelength, to record your own values using the determined transmission results.

(59)

Turbidity

20 - 1000 FAU (Turb)

Internal Name: 59-Turbidity

Measurement procedure:

1	Fill 10 ml distilled water in a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Empty the cuvette.
8	Mix the sample thoroughly.
9	Rinse the cuvette several times with the sample water.
10	Then fill 10 ml of the sample water in the cuvette.
11	Screw the lid back on the cuvette.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to perform the measurement.
14	The measured value is immediately displayed.

Notes:

- The test result can be converted into the following unit(s): FTU (same as FAU)
- FAU stands for Formazin Attenuation Units, different from the NTU (nephelometric) method.
- The measurement should be conducted immediately after sampling.
- Air bubbles will influence the measurement result.
- Tinted water samples influence the result. In this case do not use distilled water (step 1) but rather filtered sample water for the ZERO adjustment.

- The turbidity test measures the optical value of the sample which results from the scattering and absorption of light particles. The amount of turbidity depends on variables such as size, shape, colour and the refractive nature of the particles.This test is calibrated using Formazin Turbidity Standards and the readings are in terms of FAU (Formazin Attenuation Units). This test can be used for daily plant monitoring and 1 FAU is equivalent to 1 NTU (Nephelometric Turbidity Unit). This test is not suitable for USEPA reporting purposes as the optical method of measurement for FAU is very different than the NTU method.However 1 NTU = 1 FTU = 1 FAU when traced to formazin primary standards.

(112)

Turbidity-NTU

0.5 - 1000.0 NTU (Turb)

Internal Name: 112-Turbidity-NTU

Measurement procedure:

1	Mix the sample thoroughly.
2	Rinse the cuvette several times with the sample water.
3	Then fill 10 ml of the sample water in the cuvette.
4	Screw the lid back on the cuvette.
5	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
6	Tap TEST to perform the measurement.
7	The measured value is immediately displayed.

Notes:

- If low values (< 20 NTU) are expected, we recommend to let the water sample (in the vial) rest for at least 05:00 minutes before pressing TEST. As an alternative, you can also continue to repeat measurement in steps of 01:00 minute. The lowest value displayed can be taken as a result.
- The test result can be converted into the following unit(s): FTU / FNU
- Ensure that all parts are clean, dry and free of grease and the adapter must be placed firmly until it stops.
- The following factors affect the accuracy of the measurement result : • a cell not thoroughly cleaned / residue from previous measurements • scratches/water bubbles on the cell inner wall • finger prints on the cell • environmental influences, such as different or extreme temperatures, humidity or strong sunlight
- The turbidity measurement method ID 112 uses, is based on the nephelometric principle, which is described in DIN EN ISO 7027.
- Make sure the PrimeLab 2.0 is calibrated correctly (see: "Settings - Calibration > Turbidity (NTU)".)
- Make sure that you use the cuvette specifically selected for this test, which has been prepared according to chapter: "Settings - Calibration > Turbidity (NTU)".
- NTU standards should be stored at 5 - 25 °C.

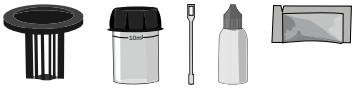
(120)

Powder Pack
+ Liquid

Urea

0.1 - 2.5 mg/l ($(NH_2)_2CO$)

Internal Name: 120-Urea-tab-liq



Ammonia N°1 Photometer (PPHAM1)
Ammonia N°2 Photometer (PPPAM2)
30ml PL Urea N°1 (PL30Urea1)
10ml PL Urea N°1 (PL10Urea2)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 2 drop(s) of PL Urea 1 into the cuvette.
8	Screw the lid back on the cuvette.
9	Gently swirl the cuvette to mix the liquid well.
10	Add 1 drop(s) of PL Urea 2 into the cuvette.
11	Screw the lid back on the cuvette.
12	Gently swirl the cuvette to mix the liquid well.
13	Tap TEST to perform the measurement.
14	Wait until the 05:00 minute(s) countdown ran out.
15	Add 1 Ammonia N°1 Photometer powder pillow to the sample water in the cuvette.
16	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
17	Add 1 Ammonia N°2 Photometer powder pillow to the sample water in the cuvette.
18	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
19	Screw the lid back on the cuvette.
20	Gently swirl the cuvette to mix the liquid well.
21	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
22	Tap TEST to start a 10:00 minute(s) countdown.
23	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- Ammonia N°1 will only dissolve completely after adding Ammonia N°2.
- Samples with concentrations above 2 mg/l urea may lead to results in between the measurement range. If so, please dilute sample with urea-free water and re-do the test.
- Ammonia and chloramines will be detected together. The result displayed will show the sum of both.
- The temperature of the water sample must be between 20 °C and 30 °C to ensure precise measurements.
- Test needs to be carried out not later than 1 hour after taking the sample.
- If seawater is tested, the sample needs to be pre-treated with special conditioning powder before Ammonia N°1 is added.
- Do not store PL Urea 1 below 10 °C as it might granulate.
- PL Urea 2 needs to be stored between 4 °C and 8 °C.

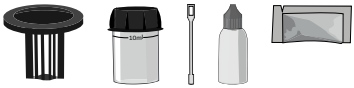
(150)

Powder Pack
+ Liquid

Urea HR

0.2 - 5.0 mg/l ($(NH_2)_2CO$)

Internal Name: 150-UreaHR-tab-liq



Ammonia N°1 Photometer (PPHAM1)
Ammonia N°2 Photometer (PPPAM2)
30ml PL Urea N°1 (PL30Urea1)
10ml PL Urea N°1 (PL10Urea2)

Measurement procedure:

1	Fill 5 ml distilled water into a clean 24 mm cuvette.
2	Add 5 ml test water to the same cuvette.
3	Screw the lid back on the cuvette.
4	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
5	Start ZERO measurement.
6	Remove the cuvette again.
7	Unscrew the lid from the cuvette.
8	Add 2 drop(s) of PL Urea 1 into the cuvette.
9	Screw the lid back on the cuvette.
10	Gently swirl the cuvette to mix the liquid well.
11	Add 1 drop(s) of PL Urea 2 into the cuvette.
12	Screw the lid back on the cuvette.
13	Gently swirl the cuvette to mix the liquid well.
14	Tap TEST to start a 05:00 minute(s) countdown.
15	The cuvette does not need to be placed in the device during this time.
16	Add 1 Ammonia N°1 Photometer powder pillow to the sample water in the cuvette.
17	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
18	Add 1 Ammonia N°2 Photometer powder pillow to the sample water in the cuvette.
19	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
20	Screw the lid back on the cuvette.
21	Gently swirl the cuvette to mix the liquid well.
22	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
23	Tap TEST to start a 10:00 minute(s) countdown.
24	After the lapse of a 10:00 minute(s) countdown the measured value is displayed.

Notes:

- Ammonia N°1 will only dissolve completely after adding Ammonia N°2.
- Samples with concentrations above 2 mg/l urea may lead to results in between the measurement range. If so, please dilute sample with urea-free water and re-do the test.
- Ammonia and chloramines will be detected together. The result displayed will show the sum of both.
- The temperature of the water sample must be between 20 °C and 30 °C to ensure precise measurements.
- Test needs to be carried out not later than 1 hour after taking the sample.
- If seawater is tested, the sample needs to be pre-treated with special conditioning powder before Ammonia N°1 is added.
- Do not store PL Urea 1 below 10 °C as it might granulate.
- PL Urea 2 needs to be stored between 4 °C and 8 °C.

(62) Zinc (in absence of chlorine)

Tablet

0.00 - 1.00 mg/l (Zn)

Internal Name: 62-CoZinc-tab

Copper/Zinc LR Photometer (TbsPCZ)
EDTA (TbsHED)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Copper/Zinc LR tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Screw the lid back on the cuvette.
11	Gently swirl the cuvette to mix the liquid well.
12	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
13	Tap TEST to start a 01:00 minute(s) countdown.
14	Wait until the 01:00 minute(s) countdown ran out.
15	Remove the cuvette again.
16	Unscrew the lid from the cuvette.
17	Add 1 EDTA tablet(s) to the test water in the cuvette.
18	Crush the tablet with a clean stirring rod.
19	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
20	Screw the lid back on the cuvette.
21	Gently swirl the cuvette to mix the liquid well.
22	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
23	Tap TEST to start a 01:00 minute(s) countdown.
24	After the lapse of a 01:00 minute(s) countdown the measured value is displayed.

(62) Zinc (in presence of chlorine)

Tablet

0.00 - 1.00 mg/l (Zn)

Internal Name: 62-CoZinc-tab

Copper/Zinc LR Photometer (TbsPCZ)
EDTA (TbsHED)
Dechlor (TbsHDC)

Measurement procedure:

1	Fill 10 ml test water into a clean 24 mm cuvette.
2	Screw the lid back on the cuvette.
3	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
4	Start ZERO measurement.
5	Remove the cuvette again.
6	Unscrew the lid from the cuvette.
7	Add 1 Dechlor tablet(s) to the test water in the cuvette.
8	Crush the tablet with a clean stirring rod.
9	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
10	Tap NEXT to start a 00:15 minute(s) countdown.
11	Add 1 Copper/Zinc LR tablet(s) to the test water in the cuvette.
12	Crush the tablet with a clean stirring rod.
13	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
14	Screw the lid back on the cuvette.
15	Gently swirl the cuvette to mix the liquid well.
16	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.
17	Tap TEST to start a 01:00 minute(s) countdown.
18	Wait until the 01:00 minute(s) countdown ran out.
19	Remove the cuvette again.
20	Unscrew the lid from the cuvette.
21	Add 1 EDTA tablet(s) to the test water in the cuvette.
22	Crush the tablet with a clean stirring rod.
23	Stir with the stirring rod for about 20 seconds until the reagent is completely dissolved.
24	Screw the lid back on the cuvette.
25	Gently swirl the cuvette to mix the liquid well.
26	Insert the cuvette into the photometer. Pay attention to the arrow on the front of the cuvette.

27 Tap TEST to start a 01:00 minute(s) countdown.

28 After the lapse of a 01:00 minute(s) countdown the measured value is displayed.

Favourites

Your PrimeLab 2.0 is a powerful measurement tool with many options to choose from. The 'Favourites' menu is designed to make your life easier and to allow short-cuts to frequently performed measurement-constellations.

Favourite's test-setups

After selecting all information for a new measurement (sampling point/parameter/dilution factor) under "TEST", you have the option to save this constellation as a "favourite", i.e. the sampling point, the selected parameter and the dilution factor are saved as an icon under "Favourites" for quick access later.

- *Go to the 3 bar menu and then tap on "Test".*
- *Select the parameters you want to have pre-set later and finally tap on the star in the top right corner*
- *Check your settings and give a name to your favourite.*
- *Tap on "Save"*

Filter / search 'Favourites'

Tap on 'Favourites' on the main menu.

- *Tap on the 3-bar menu-button, followed by tapping on 'Filter' and select a sampling point and/or a parameter from the drop-down menu to filter the 'Favourites' list*
- *Tap on the search button or on the 3-bar menu-button, followed by tapping on 'Search' to enter a phrase which will be used to search a 'Favourites' name.*

Use a 'Favourite'

- *Tap on "Favourites" on the main menu.*
- *Tap on the 'Favourite' you want to use*
- *The 'TEST' menu will instantly appear with fields pre-filled according to what is saved under this 'Favourite'.*

'Favourite' on your home-screen

As with all icons of your PrimeLab 2.0, you can also create shortcuts for each "Favourite". To do this, tap on "Favourites" in the main menu and then on the star to link your desired measurement on the start screen.

EMPTY
due to technical reasons

General

One of the key-benefits of your PrimeLab 2.0 is its connectivity (Wi-Fi, USB, Bluetooth, GSM) to enable you to share and synchronize all measurement results, connected to sampling points which were tested. By synchronizing with the LabCOM® cloud, all data will be available (password protected) to be used with the LabCOM® app (Android and iOS), the LabCOM® software (Windows and Mac) and on www.labcom.cloud for instant access.*

To link to the LabCOM® cloud, your PrimeLab needs to have internet access!

Sign up to the LabCOM® cloud

To use the free LabCOM® cloud service, all you need to do is to register. Depending on your region, it might be necessary to select a cloud-server-region prior the following steps.

- *Tap on 'Cloud' on the main menu*
- *Tap on 'Register'*
- *Enter your Email-Address and an at least 6-digit password you can easily remember.*
- *Tap on 'Register'*

As long as your PrimeLab 2.0 can use a working internet-connection, e.g. through Wi-Fi, all your data (sampling points, measurement record sets, individual chemistry) will be synchronized with the LabCOM® cloud. Just log-on to the cloud from the LabCOM® app, software or web-application (www.labcom.cloud) to see and work with all data previously only stored on your PrimeLab. This option also suites for instant reporting to e.g. your headquarters or your customer(s).

Log on to the LabCOM® cloud

Once you registered a free LabCOM® cloud account, all you need to do is to log-on by :

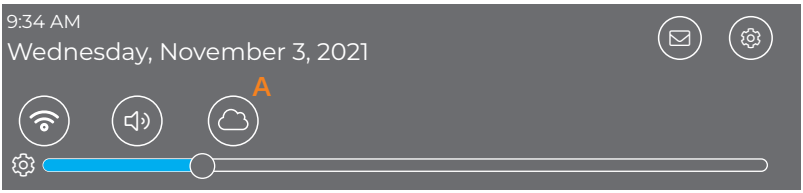
- *tapping on 'Cloud' on the main menu*
- *entering your Email-address and the password you choose during the registration process*
- *choose to tick the box for 'Update local data?' (sampling points, measurement results and individual chemicals stored on your PrimeLab 2.0 will be uploaded to your cloud-account).*
- *tap on 'Login'. Data will be synchronized in fix intervals. You can also manually refresh by tapping on the refresh-button.*

**via USB Internet Stick / accessories / may be subject to costs for connection*

Continued...

Log off from the LabCOM® cloud

To sign out from the LabCOM® cloud, tap on the icon on the right upper screen of the 'Cloud' menu.



A *After you have logged in, you can also manage or access your cloud via the short-cut on the status bar.*

Scan here to reach the LabCOM® Cloud

Chemistry

General

Under the 'Chemistry' menu, your PrimeLab 2.0 offers you to perform index calculations, active chlorine calculation, hardness conversions and to store individual water treatment chemicals to let the PrimeLab 2.0 calculate a dosage recommendation, based on a test result obtained.

Index calculation

To perform an index calculation, simply tap on the "Index" bar in the "Chemistry" menu and fill in the required fields. The RSI and LSI index as well as the pH value are calculated at the bottom of the screen as soon as all required parameters have been entered.

Active Chlorine calculation

To perform an Active Chlorine calculation, simply tap on the 'Active Chlorine' bar on the 'Chemistry' menu and fill out the required fields. The Active Chlorine value will be calculated at the bottom of the screen, once all required parameters got entered.

Water Treatment Products

PrimeLab 2.0 offers you to store your individual water treatment products on the PrimeLab 2.0 database to use it for individual dosage recommendation (see: 'Sampling Point' -> 'Dosage recommendation').

• Tap on 'Water Treatment Products' on the 'Chemistry' menu to:

• Add individual water treatment products by either tapping on the '+' icon (upper right corner) or the 3-bar-menu, followed by a tap on 'Add New'. A new window will open where you have to choose the parameter group from a drop-down menu, enter the name of the water treatment product you want to add and determine if it increases or decreases the value, followed by entering the effect-ratio.

• Edit individual water treatment products by sliding an entry to the right, followed by tapping on the edit-button.

• Deleting individual water treatment products by sliding an entry to the left, followed by tapping on the edit-button. You can also tap-hold more than one entry and tap on the delete button at the lower end of the screen to delete multiple entries.

• Searching for individual water treatment products by tapping on the 3-bar-menu button followed by tapping on 'search' and entering phrases or fractions into the search field. The individual water treatment products list will then be filtered accordingly.

Continued...

Hardness Conversion

Hardness can be expressed in different units, such as ppm $CaCO_3$, °dH etc. The 'Hardness Conversion' menu under 'Chemistry' offers you to cross-calculate such values.

Software

General

One of the benefits of your PrimeLab 2.0 is the option to upload all sampling point data, test-data and individual water treatment products to the LabCOM® cloud to have it available on the LabCOM® app (Android and iOS), software (Windows and Mac) and website (www.labcom.cloud).

All LabCOM® applications are free of charge. Whilst the web-application under www.labcom.cloud does not require any installation effort. The LabCOM® app can be downloaded from the App Store and Google Play store, LabCOM® software can be downloaded from the download-section under www.water-id.com.

LabCOM® software, app and web are powerful tools with plenty of options offered. Our IT team is constantly developing new features, which makes it difficult to offer you full guidelines of these applications in this user manual.

Nevertheless, on the PrimeLab YouTube channel you can always find the latest tutorials, guiding you through the various features the app, software and web has to offer.

More info about the benefits of synchronizing your data with the LabCOM® cloud can be found under the chapter 'Cloud' as well as 'Settings' -> 'Connections' of this user manual.

In essence:
With the LabCOM® applications you can:
- *Synchronize your PrimeLab data to be available on almost any platform*
- *Run reports and statistics*
- *View test result-development as graphics*
- *Export test results to PDF and Excel*
- *Manage sampling point and measurement data*
- *Create dosage recommendations*
- *Calculate indices*
- *Define rules such as 'needs to be tested daily at 9 am' or 'needs to be in between 1 - 2 ppm'.*
- *Grant access to your data to other users*

and much more

Watch tutorial videos and download the LabCOM® app from your app store. LabCOM® Windows and Mac software as downloads from www.water-id.com

YouTube

GET IT ON Google Play

Download on the App Store

EMPTY
due to technical reasons

Support

Troubleshoot

Your PrimeLab 2.0 has been designed for daily use. User guidance is intuitive to prevent mistakes in operation. In exceptional cases, however, the following error messages might be displayed:

• Invalid password

This error message appears when trying to log on to the LabCOM® cloud or to a Wi-Fi network, with invalid password. Please make sure you use the correct login details. A password reset is only possible via web interface LabCOM®.

• Reagent Expired (Available for you soon)

You scanned a QR-code of a reagents pack of a batch which is expired.

• Low battery power

The in-built battery of your PrimeLab 2.0 needs to be charged before you can proceed.

• No calibration data

Your PrimeLab 2.0 is calibrated on the unique LEDs/sensors setup of your PrimeLab 2.0. If the internal calibration file is missing or corrupted, please perform a PrimeLab 2.0 calibration as described under 'Settings'.
Some parameters, such as 'NTU Turbidity' require a special calibration. If this special calibration has not been performed or if the calibration file is missing/corrupted, please perform the calibration for this specific parameter as described under 'Settings'.

• PrimeLab 2.0 cannot be started (battery empty and charging cable connected)

The PrimeLab 2.0 needs at least 5min before it can be started with the cable connected.

• Power button lights up red

The power button always lights up red as soon as the charging cable is connected. Once the device is 100% charged, the power button no longer lights up.

• Power button blinks red

Error during the charging process. The device is defective or overheated. In case of long-term malfunction, contact your distributor.

• Update incomplete:

Due to the ability to connect your PrimeLab 2.0 to the internet, you will be offered to download and install the latest update, which may contain additional parameters (requiring an activation code), bug fixes or additional features. Updates are requested through a pop-up window. If your PrimeLab 2.0 has problems during the download or installation of the update, the message 'Update incomplete' will be displayed. A 'Repeat Update' button allows you to repeat the update process. It is strongly recommended that you download updates over a fast Wi-Fi connection.

• Adapter not inserted correctly

Please check whether the cuvette adapter is inserted correctly, otherwise the measurement result may be incorrect.

Continued...

• No identifiable (QR) code (Available for you soon)

You scanned a QR-code which cannot be recognized by your PrimeLab 2.0 (sampling point-, reagent-, or activation code). Please make sure you are scanning a valid sampling point- or reagents code and that the code itself is printed properly without damage. You can also enter an activation code manually. If the code is not valid, it will light up red.

• Parameter not active (Available for you soon)

If you scan a QR code of a reagent connected to (a) parameter(s) which are not activated on your PrimeLab 2.0, you will receive this error-message. In this case, proceed to the 'Parameters' menu and request an activation code.

• Overrange / Underrange

Each parameter has test range limits, such as 'Alkalinity 20 – 500 mg/l'.
If the test result obtained is outside these limits, no test result but 'Overrange' (higher than limit) or 'Underrange' (lower than limit) is displayed.

• Missing data (water volume / water treatment product)

If you try to create a dosage recommendation all available information is transferred to the input fields; if data is missing, you must enter it manually. All input fields must contain data. Please make sure that the necessary data (sampling point volume and water treatment chemicals) are entered before a dosage recommendation is launched. If your PrimeLab 2.0 does not find any products, this will be indicated accordingly.

• PrimeLab 2.0 start-up process becomes a "loop"

The battery charge of your PrimeLab 2.0 is too low to complete the start-up process.
Plug the PrimeLab to the main power supply and wait for at least 1 hour until you switch the PrimeLab 2.0 on again.

Update

Always up to date

One of the benefits of being able to connect your PrimeLab 2.0 with the internet is that you can receive updates for your device.

Updates can be necessary to benefit from new test methods / parameters, new features or even to get rid of some bugs that have not been noticed when your device was manufactured. By checking for updates and running them frequently, your PrimeLab will never be outdated but will always be up to date. If an update is available, you will receive a message (pop up window) giving you the option to run or skip the update.

If an update is available, you will also be notified by an icon on the status bar. Nevertheless, you can also actively check for updates. Just tap on 'Settings' followed by a tap on 'Device Information' to find the 'Check for Updates' button.

To enable the PrimeLab to check on available updates, an internet connection must be established. By updating your PrimeLab 2.0, you will always have the latest parameters, curves and features.

Assistance

We do our best to support you!

Even if the PrimeLab 2.0 is designed intuitive, you might be faced with questions that cannot be answered by this user manual.

As a first step, please check if there is an update available for your PrimeLab 2.0. You might be dealing with a bug which already got fixed by an update.
Tap on 'Settings' followed by 'Device Information'. You will find a 'Check for Updates' button. Click on it and perform the update in case it gets offered.

Due to updates with new features, your printed user manual might no longer be up to date. You can always download the latest user-manual from the download section under www.water-id.com.

Last but not least, the internet offers help as well.
Check out our PrimeLab and LabCOM® YouTube channel under:

PrimeLab 2.0

LabCOM®

If nothing helps, feel free to drop us an email with your request by writing to support@primelab.org.

News

Keep yourself informed

As your PrimeLab 2.0 can be connected to the internet, you are able to receive the latest news, such as new parameters and new functions.

As soon as messages are published, you will see an envelope in the status bar.

Tap on the main menu --> "Help" and then on "News" to open the section that shows you the headlines of all published "News/News".

Tap on the headline to see the full text.

Swipe the headline to the right to see the "Delete" button, or simply tap the headline to select one or more headlines followed by a tap on the "Delete" button at the bottom of the screen, or simply tap the 3 bar menu button followed by a tap on "Delete" to delete the selected "Messages".

Cleaning the device

Please keep your PrimeLab 2.0 clean!

Do not use detergents to clean your PrimeLab 2.0 but solely use little water and a soft cloth.

Make sure the transparent part (behind the vial-adapter) is properly clean and the vials used are without fingerprints, dirt, scratches. Always keep the sampling chamber (behind the vial adapter) clean. On 4 sides of the chamber, you will see small holes behind on a dark plastic part. The LEDs and sensors are located behind these. All transparent parts in front must be dry and clean.
Any soiling must be cleaned properly.

The PrimeLab beams light (LED) from one side of the measurement-chamber through the measurement chamber to the sensor(s) on the opposite or 90° side of the measurement chamber. Any interference (dirt, fingerprints, scratches) influence the light beam (less transmission) and will lead to wrong readings / wrong or failed calibration.

Do not exert any pressure when cleaning your PrimeLab 2.0, especially when cleaning the display.

Clean the plastic pane in front of the camera lens to ensure that QR-codes (Available for you soon) can be recognized properly.

Avoid water entering the USB port of your PrimeLab 2.0.

Technical Data

Dimensions:	*10 x 25.5 x 5.9 cm*
Weight:	*715g*
Spectral Range:	*390nm - 950nm (parallel reading)* *18 wavelength, peaks at 410/435/460/485/510/535/560/585/610/645/680/705/730/760/810/860/900/940nm* *180° and 90° Setup for direct and indirect measurement*
Photometric accuracy:	*2 % FS (25 °C)*
Parameters:	*More than 140 parameters (flexible setup)* *User defined parameter function*
Electrodes:	*USB-type-C connector for ProbeBOX 1.0*
Connectivity (technical):	*Bluetooth® 4.2, WiFi, USB (type C), 4G**
Connectivity: (software)	*LabCOM® software (Windows / Mac), LabCOM® App (Android / iOS), LabCOM® Cloud (web-browser)*
Display:	*5.5'' Colour-HD-Touch Display*
Camera:	*(Available for you soon) In-built QR-code scanner*
Calibration:	*Auto-calibration function with certificate (software)*
One-Time-Zero:	*Intelligent OTZ (One-Time-Zero) function with recognition of ZERO types*
Internal Memory:	*>150 000 measurements*
Clock / Date:	*RTC (Real-Time-Clock)*
Auto-Off:	*Factory default setting = 30 minutes.* *Individual adjustment possible*
Auto-Standby:	*Factory default setting = 10 minutes | Individual adjustment possible* *Display-Dimming Factory default setting = on*
Menu guidance:	*Intuitive, display-controlled 4-button menu guidance;* *test instructions during measurement process*
Power supply:	*8.400 mAh Li-Io-battery | Charging time (0 – 100%): 4 – 8 hours*
Languages:	*> 15*
Environment:	*5°C – 45°C / 30 – 90% rel. humidity*
Water-proof rating:	*PrimeLab 2.0 is splash-water-proof (IP 54)*
WiFi frequency:	*2.4 GHz and 5 GHz*
Transmit power:	*max. 16 dBm.*
Reagents:	*The calibration curves are adjusted to the reagents offered by Water-i.d.®* *Using reagents from other manufacturers may lead to wrong readings!*

**via USB Internet Stick / accessories / may be subject to costs for connection*

Compliance Statement

CERTIFICATE OF COMPLIANCE

We, Water-i.d. GmbH Germany, hereby certify that your device

PrimeLab 2.0

has passed intensive visual and technical checks as part of our Quality-Management documentation.

We confirm the device got factory-calibrated.

Water-i.d. GmbH (Germany)

Andreas Hock, Managing Director

Water-i.d. GmbH • Daimlerstr. 20 • D-76344 Eggenstein • Germany
www.water-id.com

Water-i.d. is certified according to ISO 9001:2015

Guarantee Policy

Guarantee Policy

For this product, if bought new from an authorized distributor of the manufacturer, we grant a two year warranty, as required by law, starting from the date of purchase as shown on the purchase receipt.

This guarantee does not cover any parts installed in the device that were not purchased from the manufacturer of the device.

In case of a defect during the guarantee period, the device needs to be returned to the manufacturer who, at its own discretion, may either repair the device free of charge or replace it, under the condition that the device has not been tampered with or been used improperly, and that no modifications or repairs have been carried out on the device without the explicit written permission by the manufacturer.

When returning the device, always include the original purchase receipt and a precise description of the claim. If the purchase receipt and / or fault description are not included, processing guarantee claims is not possible and the device will be shipped back to the sender on his/her expenses.

According to the legal requirements the device will, after guarantee services have been claimed, be subject to the guarantee conditions for the remaining duration of the original guarantee.

The manufacturer of the device is and shall not be liable for any damages or loss of revenue or savings as well as other consequent or collateral damages incurred in the past or the future by the user due to using or not being able to use the device.

The guarantee policy declared here is without prejudice to any further legal claims by the user versus the direct contractual partner.

The manufacturer guarantee for direct, indirect, special damages, consequential or collateral damages caused by the use of the device, its accompanying software or documentation, shall in no case whatsoever exceed the final price paid for the product.
The manufacturer does not offer any compensation upon return to the unit.

The manufacturer cannot be held responsible for damage due to improper handling of the device.
In case of improper handling of the device, user protection cannot be granted anymore.

All warranty claims become invalid, once the device was opened by the user or any other party, which has not been legitimized by the manufacturer.

Safety Instructions

Do not lick or eat reagents

Doing so may cause deathly poisoning depending on the type of reagent.
Please read the warnings on the packaging/the MSDS and follow the instructions.

Do not use damaged power cords or plugs, or loose electrical sockets

Unsecured connections can cause electric shock or fire.

Do not touch the device, power cords, plugs, or the electric socket with wet hands or other wet body parts

Doing so may cause electric shock.

Do not pull the power cord excessively when disconnecting it

Doing so may cause electric shock or fire.

Do not bend or damage the power cord

Doing so may cause electric shock or fire.

Do not directly connect together the charger's positive and negative terminals

Doing so may cause fire or serious injury.

Do not use your device outdoor during a thunderstorm and/or rain

Doing so may result in electric shock or device malfunction.

Use manufacturer-approved chargers, accessories, and supplies

• Only use Water-i.d.® approved chargers and cables specifically designed for your device to achieve the fastest possible charging results.
• Water-i.d.® cannot be held responsible for the safety of the user if accessories or equipment not approved by Water-i.d.® are used.
• Do not place near heat sources such as fires or heaters.

Do not carry your device in your back pockets or on your waist

• The device may be damaged, explode, or result in a fire if too much pressure is applied to it.
• You may be injured if you are bumped or fall.

Do not drop or cause excessive impact to the device

• This may damage your device or battery, cause the device to malfunction, or shorten ist lifespan.
• This may also cause overheating, combustion, fire, or other hazards.

Handle and dispose of the device and charger with care

• Never dispose of the battery or device in a fire. Never place the battery or device on or in heating devices, such as microwave ovens, stoves, or radiators. The device may explode when overheated. Follow all local regulations when disposing of used device.
• Never crush or puncture the device.
• Avoid exposing the device to high external pressure, which can lead to an internal short circuit and overheating.

Continued...

Safety Instructions

Protect the device, battery and charger from damage

• Avoid exposing your device and battery to very cold or very hot temperatures.
• Extreme temperatures can damage the device and reduce the charging capacity and life of your device and battery.
• Do not use a cable whose covering is peeled off or damaged, and do not use any charger or battery that is damaged or malfunctioning.

Do not store your device near or in heaters, microwaves, hot cooking equipment, or high-pressure containers

• Your device may overheat and cause a fire.

Do not use or store your device in areas with high concentrations of dust or airborne materials

Dust or foreign materials can cause your device to malfunction and may result in fire or electric shock.

Prevent the multipurpose jack and the small end of the charger from contact with conductive materials, such as liquids, dust, metal powders, and pencil leads.

Do not touch the multipurpose jack with sharp tools or cause an impact to the multipurpose jack
Conductive materials may cause a short circuit or corrosion of the terminals, which may result in an explosion or fire.

Do not bite or suck the device or the battery

• Doing so may damage the device or result in an explosion or fire.
• Children or animals can choke on small parts.
• If children use the device, make sure that they use the device properly.

Do not insert the device or supplied accessories into the eyes, ears, or mouth

Doing so may cause suffocation or serious injuries.

Do not handle a damaged or leaking Lithium Ion (Li-Io) battery

For safe disposal of your Li-Io battery, contact your nearest authorised service centre.
Failure to comply with safety cautions and regulations can cause injury or property damage

Do not use your device in a hospital, on an aircraft, or in an automotive equipment that can be interfered with by radio frequency

• Avoid using your device within a 15 cm range of a pacemaker, if possible, as your device can interfere with the pacemaker.
• To minimise possible interference with a pacemaker, use your device only on the side of your body that is opposite the pacemaker.
• If you use medical equipment, contact the equipment manufacturer before using your device to determine whether the equipment will be affected by radio frequencies emitted by the device.
• On an aircraft, using electronic devices can interfere with the aircraft's electronic navigational instruments. Follow the regulations provided by the airline and the instructions of aircraft personnel. In cases where it is allowed to use the device, always use it with all radio-options switched off.
• Electronic devices in your car may malfunction, due to radio interference from your device. Switch off all radio function of your device to avoid interference.

Continued...

Safety Instructions

Do not expose the device to heavy smoke or fumes

Doing so may damage the outside of the device or cause it to malfunction.

If you use a hearing aid, contact the manufacturer for information about radio interference

The radio frequency emitted by your device may interfere with some hearing aids. Before using your device, contact the manufacturer to determine whether your hearing aid will be affected by radio frequencies emitted by the device.

Turn off the device in potentially explosive environments

• Always comply with regulations, instructions and signs in potentially explosive environments.
• Do not use your device at refuelling points (petrol stations), near fuels or chemicals, or in blasting areas.
• Do not store or carry flammable liquids, gases, or explosive materials in the same compartment as the device, its parts, or accessories.

If any part of the device is broken, smokes, or emits a burning odour, stop using the device immediately.

Use the device again only after it has been repaired by the manufacturer or someone who was approved by the manufacturer.
• Broken glass or acrylic could cause injury to your hands and face.
• When the device smokes or emits a burning odour, it may result in battery explosion or fire.

Comply with all safety warnings and regulations regarding device usage while operating a vehicle

While driving, safely operating the vehicle is your first responsibility. Never use your device while driving, if law prohibits it. For your safety and the safety of others, use your common sense and remember the following tips:
• Do not use your PrimeLab 2.0 while driving. You could be distracted from the road and cause a car accident.

Care and use your device properly

• Keep your device dry
• Humidity and liquids may damage the parts or electronic circuits in your device.
• Do not turn on your device if it is wet. If your device is already on, turn it off (if the device will not turn off, leave it as-is). Then, dry the device with a towel and take it to a service centre.
• This device has internal liquid indicators fitted. Water damage to your device may void the manufacturer's warranty.

Store your device only on flat surfaces

If your device falls, it may be damaged.

Do not store your device in very hot areas such as inside a car in the summertime.

Doing so may cause the screen to malfunction, result in damage to the device, or cause the battery to explode.
• Do not expose your device to direct sunlight for extended periods (on the dashboard of a car, for example).

Do not store your device with metal objects, such as coins, keys, and necklaces

• Your device may be scratched or may malfunction.

Continued...

Safety Instructions

Avoid contact with device when it is overheating.

Failure to do so may cause low temperature burns, redness and skin pigmentation

• Be careful of overheating of the device when using it for extended periods and avoid prolonged skin contact.

• Do not sit on your device or make direct contact with your skin for extended periods when charging or connected to a power source.

• Tolerance to high temperature varies individually. Please take extra caution regarding the use of this device by children, elders and people with special conditions.

Be careful not to expose the camera lens to a strong light source, such as direct sunlight

If the camera lens is exposed to a strong light source, such as direct sunlight, the camera image sensor may be damaged. A damaged image sensor is irreparable and will cause dots or spots in pictures.

Use caution when exposed to flashing lights

• While using your device, leave some lights on in the room and do not hold the screen too close to your eyes.

• Seizures or blackouts can occur when you are exposed to flashing lights for extended periods. If you feel any discomfort, stop using the device immediately.

• If anyone related to you has experienced seizures or blackouts while using a similar device, consult a physician before using the device.

• If you feel discomfort, such as a muscle spasm, or disoriented, stop using the device immediately and consult a physician.

• To prevent eye strain, take frequent breaks while using the device.

Reduce the risk of repetitive motion injuries

When you repetitively perform actions you may experience occasional discomfort in your hands, neck, shoulders, or other parts of your body. When using your device for extended periods, hold the device with a relaxed grip, press the keys lightly, and take frequent breaks. If you continue to have discomfort during or after such use, stop using the device and consult a physician.

Do not use the device while walking or moving

The device should only be operated on a solid surface.

Do not paint or put stickers on your device

• Paint and stickers can prevent proper operation.

• If you are allergic to paint or metal parts of the device, you may experience itching, eczema, or swelling of the skin. When this happens, stop using the device and consult your physician.

Install mobile devices and equipment with caution

• Ensure that any mobile devices or related equipment installed in your device are securely mounted.

Do not drop your device or cause impacts to your device

• Your device may be damaged or may malfunction.

• If bent or deformed, your device may be damaged or parts may malfunction.

Continued...

Safety Instructions

Ensure maximum battery and charger life

• Batteries may malfunction if they are not used for extended periods.
• Over time, unused device will discharge and must be recharged before use.
• Disconnect the charger from power sources when not in use.
• Use the battery only for their intended purposes.
• Follow all instructions in this manual to ensure the longest lifespan of your device and battery. Damages or poor performance caused by failure to follow warnings and instructions can void your manufacturer's warranty.
• Your device may wear out over time. Some parts and repairs are covered by the warranty within the validity period, but damages or deterioration caused by using unapproved accessories are not.

When using the device, mind the following

• For testing please place your PrimeLab 2.0 on a flat surface. Otherwise measurement results can be inaccurate or dangerous liquids could run over your skin.

Do not disassemble, modify, or repair your device

• Any changes or modifications to your device can void your manufacturer's warranty. If your device needs servicing, send your device to an authorized service centre.
• Do not disassemble or puncture the battery, as this can cause explosion or fire
• Do not disassemble or reuse the battery.
• NEVER remove the battery!

When cleaning your device, mind the following

• Wipe your device or charger (disconnected) with a towel or an eraser.
• Do not use chemicals or detergents. Doing so may discolour or corrode the outside the device or may result in electric shock or fire.
• Prevent the device from being exposed to dust, sweat, ink, oil, and chemical products such as cosmetics, antibacterial spray, hand cleaner, detergent, and insecticides. The device's exterior and interior parts may be damaged or it could result in poor performance. If your device is exposed to any of the previously mentioned substances, use a lint-free, soft cloth to clean it.

Do not use the device for anything other than its intended use

Your device may malfunction. You might cause yourself or others serious injuries.

Avoid disturbing others when using the device in public

Allow only qualified personnel to service your device
Allowing unqualified personnel to service your device may result in damage to your device and will void your manufacturer's warranty.

Handle cables with care

• When connecting a cable to your device, make sure that the cable is connected to the proper side.
• Do not remove the cable while the device is transferring or accessing information, as this could result in loss of data and/or damage the device.
• Connecting a cable by force or improperly may result in damage to the multipurpose jack or other parts of the device.

Continued...

Safety Instructions

Protect your personal data and prevent leakage or misuse of sensitive information

• While using your device, be sure to back up important data. Water-i.d. is not responsible for the loss of any data.

• When disposing of your device, back up all data and then reset your device to factory settings ('Settings -> ,Device Information') to prevent misuse of your personal information.

• Check your cloud-account regularly for unapproved or suspicious use. If you find any sign of misuse of your personal information, contact Water-i.d.® to delete or change your account information.

Do not distribute copyright-protected material

Do not distribute copyright-protected material without the permission of the content owner. Doing so may violate copyright laws. The manufacturer is not liable for any legal issues caused by the user's illegal use of copyrighted material. In order to guarantee an unrestricted and safe function of the device, no changes to the firmware may be made by the user himself as long as not indicated by the auto-updater of the device.

For more information, visit: https://www.water-id.com

Continued...

EMPTY
due to technical reasons

Disposal

Disposal (devices and batteries)

Disposal instructions according to
EU directive by the European Parliament and Council: 2002/96/EC
EU directive by the European Parliament and Council: 2006/66/EC

Environmental protection information

For the manufacture of your device, raw materials had to be produced and processed.
The product may there contain hazardous substances with a negative effect on the environment if the device is not disposed of properly.

Disposal of the device inclusive batteries

EU directive 2006/66/EC prohibits the disposal of batteries through normal household waste because batteries and accumulators may contain hazardous substance dangerous for the groundwater quality.
The device purchased by you contains a Lithium-Ion-battery (in-built).
We are obliged by law to notify you that the batteries contained in the device must be disposed of properly at the special collection points or with the dealer where you have purchased the device.
• The symbol of the crossed-out waste bin indicates that you are asked to dispose of the device properly.
• So that these hazardous substances do not enter our environment and contribute to a depletion of raw material resources we ask you to return the device by fully stamped mail (!) to the following address:

Water-i.d. GmbH
Daimlerstrasse 20
D-76344 Eggenstein-Leopoldshafen
Germany

PrimeLab 2.0 battery certifications and shipping conformity statements are available upon request (support@water-id.com).

Certifications

CE Conformity declaration (EG / EU / ECC)

According to directive 2014/53/EC of the European Parliament and European Council of April 16, 2014.

The manufacturer

Water-i.d. GmbH
Daimlerstr. 20
D-76344 Eggenstein-Leopoldshafen
Federal Republic of Germany

represented by the general manger
Dipl. Ec. Andreas Hock

herewith declares as follows:

The product "PrimeLab 2.0"
complies with the requirements of the following standards for:

- *USB*
- *BT 4.2 (BLE) + BT 2.1*
- *EDR*
- *802.11 a/b/g/n/ac*

Band U-NII-1 (5.150-5.250GHz)
Band U-NII-2A (5.250-5.350GHz)
Band U-NII-2C (5.470-5.725GHz)
Band U-NII-3 (5.725-5.850GHz)

ElectroMagnetic Compatibility (EMC) standards for radio equipment and services:
EN 301 489-1 V2.2.3
EN 301 489-3 V2.1.1
EN 301 489-17 V3.2.4

Radio standards:	*Frequency:*	*Power:*
ETSI EN 300 328 V2.2.2	*2.400 - 2.4835 GHz*	*<100mW*
ETSI EN 301893 V2.1.1 (incl. DFS testing)	*5.150 - 5.350/5.470 - 5.725 GHz*	*<200mW*
ETSI EN 300440 V2.2.1	*5.725 - 5.875 GHz*	*<25mW*

Safety standard:
EN IEC 62368-1:2020+A11:2020

SAR testing standard:
EN 50566:2017
EN 62479:2020
EN 62209-2:2020/A1:2019

Frequency bands and power:
Maximum radio frequency power transmitted in the frequency bands in which the radio equipment operates: The maximum power for all bands is less than the highest limit value specified in the related Harmonized Standard. The frequency bands and transmitting power (radiated and/or conducted) nominal limits applicable to this radio equipment are as follows: Wi-Fi 2.4G: 20 dBm, Bluetooth 2.4G: 20 dBm.

Water-i.d. GmbH (Germany)

Andreas Hock, Managing Director
Water-i.d. GmbH • Daimlerstr. 20 • D-76344 Eggenstein • Germany
www.water-id.com

Certifications

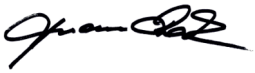
EU/EC regulatory conformance

Body worn operation
The device complies with RF specifications when used at a distance of 0 mm from your body. Ensure that the device accessories, such as a device case and device holster, are not composed of metal components. Keep the device away from your body to meet the distance requirement.

Certification information (SAR)
This device meets guidelines for exposure to radio waves. Your device is a low-power radio transmitter and receiver. As recommended by international guidelines, the device is designed not to exceed the limits for exposure to radio waves. These guidelines were developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP), an independent scientific organization, and include safety measures designed to ensure the safety of all users, regardless of age and health.

The Specific Absorption Rate (SAR) is the unit of measurement for the amount of radio frequency energy absorbed by the body when using a device. The SAR value is determined at the highest certified power level in laboratory conditions, but the actual SAR level during operation can be well below the value. This is because the device is designed to use the minimum power required to reach the network.
The SAR limit adopted by Europe is 2.0 W/kg averaged over 10 grams of tissue, and the highest SAR value for this device complies with this limit.
The highest SAR value reported for this device type when tested in portable exposure conditions is 0.417 watts/kilogram (W/kg).

Water-i.d. GmbH (Germany)



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RoHS Declaration

RoHS Declaration of Conformity

"Directive 2011/65/EU (the RoHS Directive) OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment" superseding "Directive 2002/95/EC (the RoHS Directive) OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 27 January 2003. The Certificate of Compliance includes Directive 2015/863 published in 2015 by the EU (often referred as RoHS 3) and Directive 2017/2102/EU published by the EU November 17, 2015.

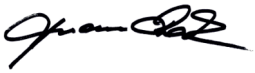
Based on the information provided by our supply lines, and our certain knowledge pertaining to our own processes, products supplied by Water-i.d. GmbH are RoHS compliant for orders placed on or after the January 1, 2006. Products supplied on or after January 3, 2013 are also RoHS compliant according the Directive 2011/65/EU, Directive 2015/863 and Directive 2017/2102/EU from the moment the respected directive came into force.

The confirmation of compliance status by our supply lines is granted for products which do not contain any of the restricted substances referred to in Annex VI in the RoHS Directive 2011/65/EU & Directive 2015/863 with a higher than maximum concentration values tolerated by weight in homogeneous materials.

Water-i.d. GmbH has taken all reasonable steps to verify the supply line information regarding the absence of restricted substances.

Eggenstein, Germany
December 2020

Water-i.d. GmbH



Andreas Hock
Managing Director

FCC-Certification

FCC Part 15 compliance statement
IC licence-exempt RSS compliance statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception which can be determined by turning the equipment off and on, the user is encouraged to try to correct interference by one or more of the following measures:

- *Reorient or relocate the receiving antenna.*
- *Increase the separation between the equipment and receiver.*
- *Connect the equipment into an outlet on circuit different from that to which the receiver is connected.*
- *Consult the dealer or an experienced radio/TV technician for help.*

Industry Canada Licence-Exempt Radio Apparatus
This device complies with Industry Canada licence-exempt RSS standard(s): ICES-003. Operation is subject to the following three conditions:
(1) this device may not cause interference, (2) this device must accept any interference, including interference that may cause undesired operation of the device and (3) Operation in the Band 5150-5250 MHz is only for indoor use to reproduce the potential for harmful interference to co-channel mobile satellite systems.

Radio Frequency (RF) Exposure Compliance of Radiocommunication ApparatusThis device complies with FCC and Industry Canada RF radiation exposure limits set forth for general population (uncontrolled exposure). This device must not be collocated or operating in conjunction with any other antenna or transmitter. This device complies with FCC and Industry Canada RF radiation exposure limits set forth for general population (Uncontrolled Environment).

Continued...

FCC-Certification

This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter. Changes or modifications not expressly approved by Water-i.d. GmbH could void the user's authority to operate the equipment.

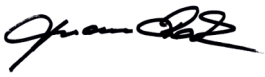
FCC ID: 2ALRR-PRIMELAB20
IC: 22610-PRIMELAB20
Model: PrimeLab 2.0

The SAR limit adopted by USA and Canada is 1.6 watts/kilogram (W/kg) averaged over one gram of tissue. The highest SAR value reported to the Federal Communications Commission (FCC) and the Industry Canada (IC) for this device type when it is properly worn on the body is 0.704 watts/kilogram (W/Kg).
The device complies with the RF specifications when the device is used near your distance of 0 mm from your body. Ensure that the device accessories such as a device case and a device holster are not composed of metal components. Keep your device 0 mm away from your body to meet the requirement earlier mentioned.

This device was tested for typical body-worn operations. To comply with RF exposure requirements, a minimum separation distance of 0 mm must be maintained between the user's body and the handset, including the antenna. Third-party belt-clips, holsters, and similar accessories used by this device should not contain any metallic components. Body worn accessories that do not meet these requirements may not comply with RF exposure requirements and should be avoided. Use only the supplied or an approved antenna.

Tested standards:
- *FCC part 15.247*
- *FCC part 15.407*
- *KDB 90542 (DFS testing)*
- *FCC part 2.1093*
- *ANSI/IEEE C95.1*
- *ANSI/IEEE C95.3*
- *FCC part 15B*
- *RSS-247*
- *ICES-003*

Water-i.d. GmbH (Germany)



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www.water-id.com

TELEC-Certification

TELEC (MIC) / IMDA Declaration of Conformity (Japan / Singapore)

We, Water-i.d. GmbH Germany, hereby declare that the product/model PrimeLab 2.0 was certified for type certification pursuant to Article 2, paragraph 1, item 19.

Tests performed:

- *Band U-NII-2A*
- *Band U-NII-2C*
- *J 55032*
- *CE-RED*

Type of radio wave, frequency and antenna power:

- *USB*
- *BT 4.2 (BLE) + BT 2.1*
- *EDR*
- *802.11 a/b/g/n/ac*

Band U-NII-1 (5.150-5.250GHz)
Band U-NII-2A (5.250-5.350GHz)
Band U-NII-2C (5.470-5.725GHz)

Type certification number: 210-165377

Water-i.d. GmbH (Germany)

Andreas Hock, Managing Director
Water-i.d. GmbH • Daimlerstr. 20 • D-76344 Eggenstein • Germany
www.water-id.com

Certifications

UK Conformity Assessed

We, Water-i.d. GmbH Germany, hereby certify our responsibility, that the following product: PrimeLab 2.0 Photometer, is tested to and conforms with the essential test suites included in the following standards, which are in force within the EEA:

Standards	*Legislation Number*
EN 55032: 2015; EN 55035: 2017; *EN 61000-3-2: 2014; EN 61000-3-3: 2013;* *ETSI EN 301 489-1 V2.2.3: 2019;* *ETSI EN 301 489-3 V2.1.1: 2019;* *ETSI EN 301 489-17 V3.2.4: 2020;*	*Regulations 2016 (S.I. 2016/1091)*
EN IEC 62368-1:2020+A11:2020	*Regulations 2016 (S.I. 2016/1101)*
ETSI EN 300 328 V2.2.2: 2019; *ETSI EN 301 893 V2.1.1: 2017;* *ETSI EN 300 440 V2.2.1: 2018;*	*Regulations 2017 (S.I. 2017/1206)*

And therefore complies with the essential requirements of the following directives:

Legislation Name	*Legislation Number*	*Further identification*
Electromagnetic Compatibility Regulations	*Regulations 2016 (S.I. 2016/1091)*	*Electromagnetic Compatibility (EMC)*
Electrical Equipment (Safety) Regulations	*Regulations 2016 (S.I. 2016/1101)*	*Safety*
Radio Equipment Regulations (S.I. 2017/1206)	*Regulations 2017*	*Radio Equipment*
Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations	*Regulations 2012 (S.I. 2012/3032)*	*RoHS*

Certifications

The technical documentation as required by the conformity assessment procedure is kept at the following address for a period ending at least 10 years after the last product has been manufactured at the disposal of the relevant national authorities of any Member State for inspection:

Water-i.d. GmbH (Germany)
Daimlerstr. 20 • 76344 Eggenstein • Germany

The product is UKCA-marked in: UK CA

Water-i.d. GmbH (Germany)

Andreas Hock, Managing Director
Water-i.d. GmbH • Daimlerstr. 20 • D-76344 Eggenstein • Germany
www.water-id.com

EMPTY
due to technical reasons

Privacy Policy for LabCom®

Privacy Policy

Last updated: December 14th, 2020

This Privacy Policy describes Our policies and procedures on the collection, use and disclosure of Your information when You use the Service and tells you about Your privacy rights and how the law protects You.

We use Your Personal data to provide and improve OUR Service. By using the Service, You agree to the collection and use of information in accordance with this Privacy Policy.

Interpretation and Definitions

The words of which the initial letter is capitalized have meanings defined under the following conditions. The following definitions shall have the same meaning regardless of whether they appear in singular or in plural.

Definitions for the purposes of this Privacy Policy:

Account means a unique account created for You to access our Service or parts of our Service.

Affiliate means an entity that controls, is controlled by or is under common control with a party, where "control" means ownership of 50% or more of the shares, equity interest or other securities entitled to vote for election of directors or other managing authority.

Application means the software program provided by the Company downloaded by You on any electronic device or pre-installed on your PrimeLab 2.0, named LabCOM® or Cloud.

Business refers to the Company as the legal entity that collects Consumers' personal information and determines the purposes and means of the processing of Consumers' personal information, or on behalf of which such information is collected and that alone, or jointly with others, determines the purposes and means of the processing of consumers' personal information.

Company (referred to as either "the Company", "We", "Us" or "Our" in this Agreement) refers to Water-i.d. GmbH, Daimlerstraße 20, 76344 Eggenstein. For the purpose of the GDPR, the Company is the Data Controller.

Consumer means a natural person. A natural person, as defined by law.

Country refers to: Baden-Württemberg, Germany

Data Controller, for the purposes of the GDPR (General Data Protection Regulation), refers to the Company as the legal person which alone or jointly with others determines the purposes and means of the processing of Personal Data.

Device means any device that can access the Service such as a computer, a cell phone, a digital tablet or the PrimeLab 2.0 itself.

Do Not Track (DNT) is a concept that has been promoted by US regulatory authorities, in particular the U.S. Federal Trade Commission (FTC), for the Internet industry to develop and implement a mechanism for allowing internet users to control the tracking of their online activities across websites.

Continued...

Privacy Policy for LabCom®

Personal Data is any information that relates to an identified or identifiable individual.
For the purposes for GDPR, Personal Data means any information relating to You such as a name, an identification number, location data, online identifier or to one or more factors specific to the physical, physiological, genetic, mental, economic, cultural or social identity.
Personal Data means any information that identifies, relates to, describes or is capable of being associated with, or could reasonably be linked, directly or indirectly, with You.

Sale means selling, renting, releasing, disclosing, disseminating, making available, transferring, or otherwise communicating orally, in writing, or by electronic or other means, a Consumer's Personal information to another business or a third party for monetary or other valuable consideration.

Service refers to the Application.

Service Provider means any natural or legal person who processes the data on behalf of the Company. It refers to third-party companies or individuals employed by the Company to facilitate the Service, to provide the Service on behalf of the Company, to perform services related to the Service or to assist the Company in analysing how the Service is used. For the purpose of the GDPR, Service Providers are considered Data Processors.

Third-party Social Media Service refers to any website or any social network website through which a User can log in or create an account to use the Service.

Usage Data refers to data collected automatically, either generated by the use of the Service or from the Service infrastructure itself (for example, the duration of a page visit).

You means the individual accessing or using the Service, or the company, or other legal entity on behalf of which such individual is accessing or using the Service, as applicable.

Under GDPR (General Data Protection Regulation), You can be referred to as the Data Subject or as the User as you are the individual using the Service.

Collecting and Using Your Personal Data

Types of Data Collected

Personal Data While using Our Service, We may ask You to provide Us with certain personally identifiable information that can be used to contact or identify You. Personally identifiable information may include, but is not limited to:

- **Email address**
- **First name and last name**
- **Phone number**
- **Address, State, Province, ZIP/Postal code, City, Country**
- **Usage Data**

Usage Data

Usage Data is collected automatically when using the Service.

Usage Data may include information such as Your Device's Internet Protocol address (e.g. IP address), browser type, browser version, the pages of our Service that You visit, the time and date of Your visit, the time spent on those pages, unique device identifiers and other diagnostic data.

Continued...

Privacy Policy for LabCom®

When You access the Service by or through a mobile device, We may collect certain information automatically, including, but not limited to, the type of mobile device You use, Your mobile device unique ID, the IP address of Your mobile device, Your mobile operating system, the type of mobile Internet browser You use, unique device identifiers and other diagnostic data. We may also collect information that Your browser sends whenever You visit our Service or when You access the Service by or through a mobile device.

Information Collected while Using the Application

While using Our Application, in order to provide features of Our Application, We may collect, with your prior permission:

• Information regarding your location

• Pictures and other information from your Device's camera and photo library

We use this information to provide features of Our Service, to improve and customize Our Service. The information may be uploaded to the Company's servers and/or a Service Provider's server or it be simply stored on Your device. You can enable or disable access to this information at any time, through Your Device settings.

Use of Your Personal Data

The Company may use Personal Data for the following purposes:

• To provide and maintain our Service, including to monitor the usage of our Service.

• To manage Your Account: to manage Your registration as a user of the Service. The Personal Data You provide can give You access to different functionalities of the Service that are available to You as a registered user.

• For the performance of a contract: the development, compliance and undertaking of the purchase contract for the products, items or services You have purchased or of any other contract with Us through the Service.

• To contact You: To contact You by email, telephone calls, SMS, or other equivalent forms of electronic communication, such as a mobile application's push notifications regarding updates or informative communications related to the functionalities, products or contracted services, including the security updates, when necessary or reasonable for their implementation.

• To provide You with news, special offers and general information about other goods, services and events which we offer that are similar to those that you have already purchased or enquired about unless You have opted not to receive such information.

•To manage Your requests: To attend and manage Your requests to Us.

We may share your personal information in the following situations:

• With Service Providers: We may share Your personal information with Service Providers to monitor and analyse the use of our Service, to contact You.

• For Business transfers: We may share or transfer Your personal information in connection with, or during negotiations of, any merger, sale of Company assets, financing, or acquisition of all or a portion of our business to another company.

• With Affiliates: We may share Your information with Our affiliates, in which case we will require those affiliates to honour this Privacy Policy. Affiliates include Our parent company and any other subsidiaries, joint venture partners or other companies that We control or that are under common control with Us.

Continued...

• With Business partners: We may share Your information with Our business partners to offer You certain products, services or promotions.

• With other users: when You share personal information or otherwise interact in the public areas with other users, such information may be viewed by all users and may be publicly distributed outside. If You interact with other users or register through a Third-Party Social Media Service, Your contacts on the Third-Party Social Media Service may see Your name, profile, pictures and description of Your activity. Similarly, other users will be able to view descriptions of Your activity, communicate with You and view Your profile.

Retention of Your Personal Data

The Company will retain Your Personal Data only for as long as is necessary for the purposes set out in this Privacy Policy. We will retain and use Your Personal Data to the extent necessary to comply with our legal obligations (for example, if we are required to retain your data to comply with applicable laws), resolve disputes, and enforce our legal agreements and policies.

The Company will also retain Usage Data for internal analysis purposes. Usage Data is generally retained for a shorter period of time, except when this data is used to strengthen the security or to improve the functionality of Our Service, or We are legally obligated to retain this data for longer time periods.

Transfer of Your Personal Data

Your information, including Personal Data, is processed at the Company's operating offices and in any other places where the parties involved in the processing are located. It means that this information may be transferred to — and maintained on — computers located outside of Your state, province, country or other governmental jurisdiction where the data protection laws may differ than those from Your jurisdiction. Your consent to this Privacy Policy followed by Your submission of such information represents Your agreement to that transfer.

The Company will take all steps reasonably necessary to ensure that Your data is treated securely and in accordance with this Privacy Policy and no transfer of Your Personal Data will take place to an organization or a country unless there are adequate controls in place including the security of Your data and other personal information.

Continued...

Privacy Policy for LabCom®

Disclosure of Your Personal Data

Business Transactions

If the Company is involved in a merger, acquisition or asset sale, Your Personal Data may be transferred. We will provide notice before Your Personal Data is transferred and becomes subject to a different Privacy Policy.

Law enforcement

Under certain circumstances, the Company may be required to disclose Your Personal Data if required to do so by law or in response to valid requests by public authorities (e.g. a court or a government agency).

Other legal requirements

The Company may disclose Your Personal Data in the good faith belief that such action is necessary to:

- *Comply with a legal obligation*
- *Protect and defend the rights or property of the Company*
- *Prevent or investigate possible wrongdoing in connection with the Service*
- *Protect the personal safety of Users of the Service or the public*
- *Protect against legal liability*

Security of Your Personal Data

The security of Your Personal Data is important to Us, but remember that no method of transmission over the Internet, or method of electronic storage is 100% secure. While We strive to use commercially acceptable means to protect Your Personal Data, We cannot guarantee its absolute security.

GDPR Privacy

Legal Basis for Processing Personal Data under GDPR
We may process Personal Data under the following conditions:

- *Consent: You have given Your consent for processing Personal Data for one or more specific purposes.*
- *Performance of a contract: Provision of Personal Data is necessary for the performance of an agreement with You and/or for any pre-contractual obligations thereof.*
- *Legal obligations: Processing Personal Data is necessary for compliance with a legal obligation to which the Company is subject.*
- *Vital interests: Processing Personal Data is necessary in order to protect Your vital interests or of another natural person.*
- *Public interests: Processing Personal Data is related to a task that is carried out in the public interest or in the exercise of official authority vested in the Company.*
- *Legitimate interests: Processing Personal Data is necessary for the purposes of the legitimate interests pursued by the Company.*

In any case, the Company will gladly help to clarify the specific legal basis that applies to the processing, and in particular whether the provision of Personal Data is a statutory or contractual requirement, or a requirement necessary to enter into a contract.

Continued...

Privacy Policy for LabCom®

Your Rights under the GDPR

The Company undertakes to respect the confidentiality of Your Personal Data and to guarantee You can exercise Your rights. You have the right under this Privacy Policy, and by law if You are within the EU, to:

• Request access to Your Personal Data. The right to access, update or delete the information We have on You. Whenever made possible, you can access, update or request deletion of Your Personal Data directly within Your account settings section. If you are unable to perform these actions yourself, please contact Us to assist You. This also enables You to receive a copy of the Personal Data We hold about You.

• Request correction of the Personal Data that We hold about You. You have the right to have any incomplete or inaccurate information We hold about You corrected.

• Object to processing of Your Personal Data. This right exists where We are relying on a legitimate interest as the legal basis for Our processing and there is something about Your particular situation, which makes You want to object to our processing of Your Personal Data on this ground. You also have the right to object where We are processing Your Personal Data for direct marketing purposes.

• Request erasure of Your Personal Data. You have the right to ask Us to delete or remove Personal Data when there is no good reason for Us to continue processing it.

• Request the transfer of Your Personal Data. We will provide to You, or to a third-party You have chosen, Your Personal Data in a structured, commonly used, machine-readable format. Please note that this right only applies to automated information which You initially provided consent for Us to use or where We used the information to perform a contract with You.

• Withdraw Your consent. You have the right to withdraw Your consent on using your Personal Data. If You withdraw Your consent, We may not be able to provide You with access to certain specific functionalities of the Service.

Exercising of Your GDPR Data Protection Rights

You may exercise Your rights of access, rectification, cancellation and opposition by contacting Us. Please note that we may ask You to verify Your identity before responding to such requests. If You make a request, We will try our best to respond to You as soon as possible.

You have the right to complain to a Data Protection Authority about Our collection and use of Your Personal Data. For more information, if You are in the European Economic Area (EEA), please contact Your local data protection authority in the EEA.

Continued...

Privacy Policy for LabCom®

CCPA Privacy

Your Rights under the CCPA.

Under this Privacy Policy, and by law if You are a resident of California, You have the following rights:

• The right to notice. You must be properly notified which categories of Personal Data are being collected and the purposes for which the Personal Data is being used.

• The right to access / the right to request. The CCPA permits You to request and obtain from the Company information regarding the disclosure of Your Personal Data that has been collected in the past 12 months by the Company or its subsidiaries to a third-party for the third party's direct marketing purposes.

• The right to say no to the sale of Personal Data. You also have the right to ask the Company not to sell Your Personal Data to third parties. You can submit such a request by visiting our "Do Not Sell My Personal Information" section or web page.

• The right to know about Your Personal Data.

You have the right to request and obtain from the Company information regarding the disclosure of the following:

• The categories of Personal Data collected

• The sources from which the Personal Data was collected

• The business or commercial purpose for collecting or selling the Personal Data

• Categories of third parties with whom We share Personal Data

• The specific pieces of Personal Data we collected about You

• The right to delete Personal Data. You also have the right to request the deletion of Your Personal Data that have been collected in the past 12 months.

• The right not to be discriminated against.

You have the right not to be discriminated against for exercising any of Your Consumer's rights, including by:

• Denying goods or services to You

• Charging different prices or rates for goods or services, including the use of discounts or other benefits or imposing penalties

• Providing a different level or quality of goods or services to You

• Suggesting that You will receive a different price or rate for goods or services or a different level or quality of goods or services.

Exercising Your CCPA Data Protection Rights

In order to exercise any of Your rights under the CCPA, and if you are a California resident, You can email or call us or visit our "Do Not Sell My Personal Information" section or web page. The Company will disclose and deliver the required information free of charge within 45 days of receiving Your verifiable request. The time period to provide the required information may be extended once by an additional 45 days when reasonable necessary and with prior notice.

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Privacy Policy for LabCom®

Do Not Sell My Personal Information

We do not sell personal information. However, the Service Providers we partner with (for example, our advertising partners) may use technology on the Service that "sells" personal information as defined by the CCPA law.

If you wish to opt out of the use of your personal information for interest-based advertising purposes and these potential sales as defined under CCPA law, you may do so by following the instructions below.

Please note that any opt out is specific to the browser You use. You may need to opt out on every browser that you use.

Website

You can opt out of receiving ads that are personalized as served by our Service Providers by following our instructions presented on the Service:

- *From Our "Cookie Consent" notice banner*
- *Or from Our "CCPA Opt-out" notice banner*
- *Or from Our "Do Not Sell My Personal Information" notice banner*
- *Or from Our "Do Not Sell My Personal Information" link*

Opting out places a cookie on your computer that is uniquely associated with the browser you use to sign out. If you change browsers or delete the cookies stored by your browser, you must sign out again.

Mobile Devices

Your mobile device may give you the ability to opt out of the use of information about the apps you use in order to serve you ads that are targeted to your interests:

- *"Opt out of Interest-Based Ads" or "Opt out of Ads Personalization" on Android devices*
- *"Limit Ad Tracking" on iOS devices*

You can also stop the collection of location information from Your mobile device by changing the preferences on your mobile device. "Do Not Track" Policy as Required by California Online Privacy Protection Act (CalOPPA) Our Service does not respond to Do Not Track signals.

However, some third party websites do keep track of Your browsing activities. If You are visiting such websites, You can set Your preferences in Your web browser to inform websites that You do not want to be tracked. You can enable or disable DNT by visiting the preferences or settings page of Your web browser.