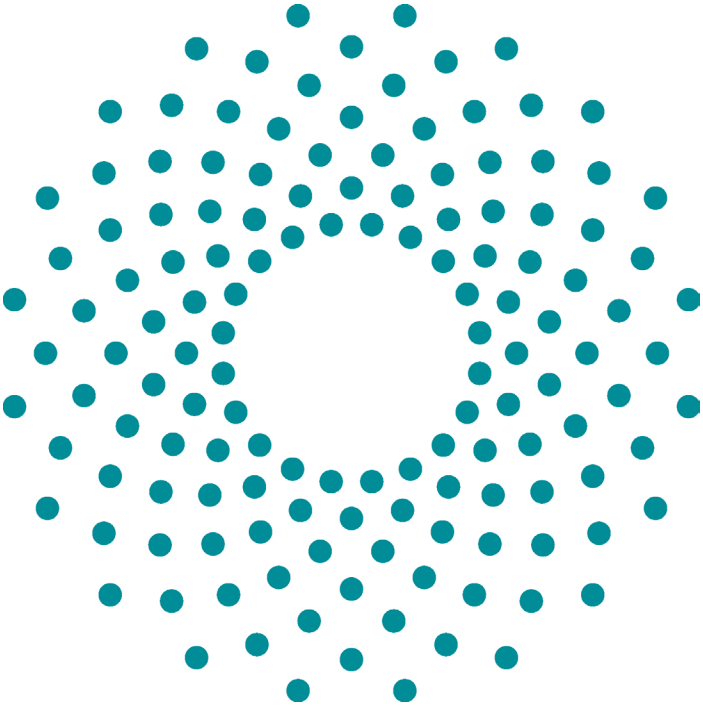
User Manual



iCheck
Iodine

iCheck **Iodine** is a testing device to measure Iodine, empowering you with instant results to make confident decisions.

BioAnalyt

Quality Guarantee

Dear customer,
Congratulations on your acquisition of iCheck™ Iodine!

iCheck Iodine will be your reliable partner for the iodine analysis.
iCheck is a high-tech portable photometer with precise and reliable results.

iCheck is produced following strict rules of quality assurance according to ISO 9001:2015. This is accomplished by the use of high-grade components and equipment as well as a stream-lined production process. This process includes quality controls of each component and rigorous calibration of the device by trained technicians.

Your iCheck Iodine comes with a 2-year warranty.

Please note: If the device is used in a manner that does not comply with the operating instructions, the protection may be impaired.

If you have any questions, please contact us by calling ***+49 33 28 35 15 000***
or sending an e-mail to ***support@bioanalyt.com***.

www.bioanalyt.com
www.facebook.com/bioanalyt
www.linkedin.com/company/bioanalyt

TOP 100

Development, manufacture and sales of all BioAnalyt test kits (devices, reagent vials) are carried out in accordance with ISO 9001:2015 and have been certified by TÜV NORD, Germany.

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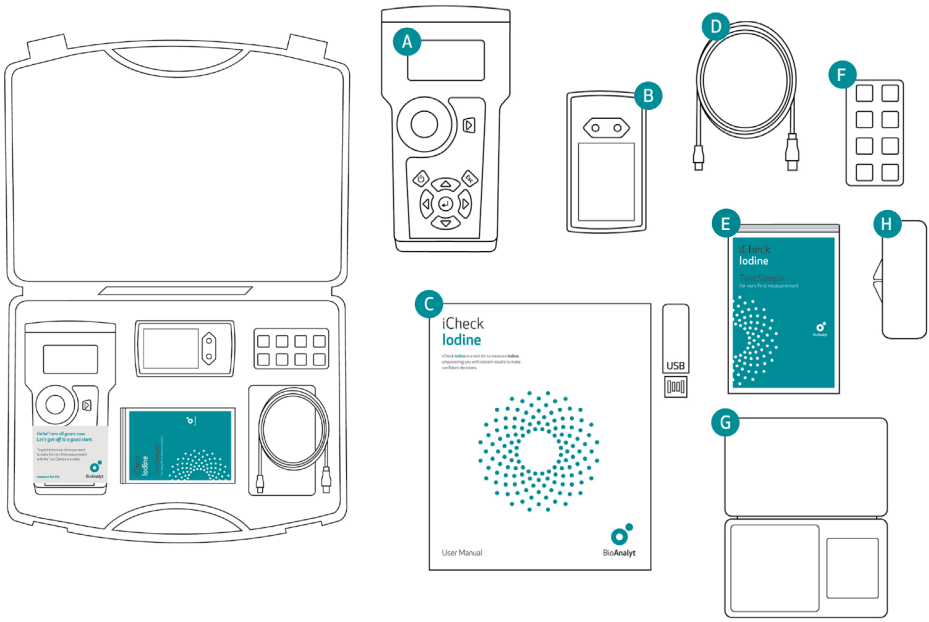
Version 2.5

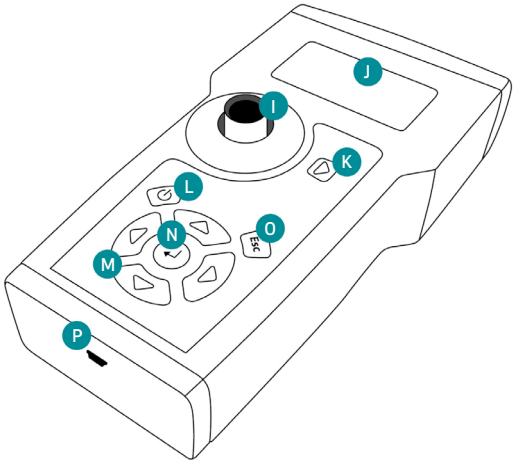
Check your Case Content

Your iCheck **Iodine** is delivered in a portable case.
The items included in the case are listed below.



- **A** iCheck Iodine with metal cap
- **B** Battery charger and 4 rechargeable batteries
- **C** User Manual and software on USB stick
- **D** USB cable for data transfer to computer
- **E** Test Sample
- **F** Stand for reagent vials
- **G** Digital balance and calibration weight
- **H** Iodine Standard

Device
Description



- **I** Measurement chamber for iCheck Iodine reagent vials with removable metal cap (not shown)
- **J** Display monitor
- **K** Measurement key
- **L** Power key (On / Off)
- **M** Menu navigation keys: left, right, up, down
- **N** Enter (OK) key
- **O** Escape key
- **P** USB cable mini-port for data transfer

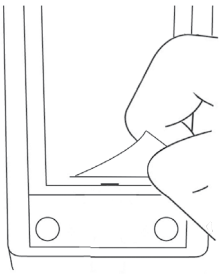
Use the 4 keys marked with triangles to navigate the menu structure of the device. To select an option, press the enter key. To exit an operation or to navigate one directory up, press the escape key.

Not shown:
Battery compartment on the back side.

Instructions
Iodine

1 Insert the batteries

- The iCheck is equipped with 4 recharge-able batteries (AA). Please charge them fully before device use.
- Open the battery compartment at the back of the iCheck by lifting the tab.



- Insert the batteries as indicated.

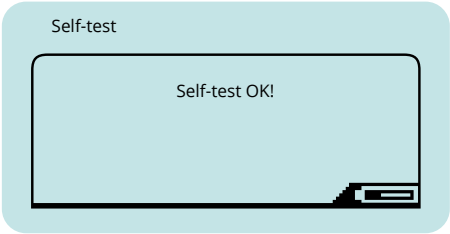
Note:
The batteries can be recharged with the supplied charger. It takes about 2-3 hours to fully charge an empty battery. Charging is best performed within the temperature range of +5 °C to +45 °C.

2 Switch on the device

- Start by placing the iCheck on a flat and stable surface. Make sure the metal cap is covering the measurement chamber.
- Switch on your iCheck by pressing the power key.

Self-test

- The device will automatically perform a self-test of the photometric unit and software. This will take approximately 10 seconds.
- When the self-test is successful the device will display “Self-test OK” and automatically bring you into the measurement mode.

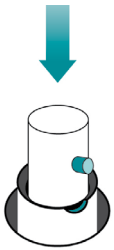


- The iCheck has an energy-saving function. 10 minutes after the last keystroke the photometer will switch off automatically.

Important: iCheck must be used with charged batteries at all times even when connected to the computer via USB cable.

3 Control the device

- Using the left and right navigation keys enter "Device Control" mode. Carefully take out Iodine Standard from its casing, remove the cap covering the measurement chamber and place Iodine Standard inside.
- Make sure the metal edges of the Iodine Standard fit into the 2 ridges of the measurement chamber. Press the measurement key and wait for the device to display a value.



- Control that the value displayed by the device, for example 55.67 AU, is within the range indicated on the casing of the Iodine Standard. For example: [20.66 - 100.66].
- When the value is within the range return to the "Sample" mode to proceed with the measurement using left or right navigation key.
- When the value displayed by the device is outside the indicated range, repeat the measurement. If the value remains outside the indicated range contact BioAnalyt Support at support@bioanalyt.com for assistance.

4 Prepare the Test Sample

- Your iCheck Iodine case includes a Test Sample of iodized salt. Use this Test Sample to check your measurement procedure and the device.
- Prepare the Test Sample according to the instructions supplied with it. Measure the Test Sample and compare your result with the concentration indicated on the Test Sample.
- If your result deviates from the expected concentration of the Test Sample by more than ±10% contact BioAnalyt Support.

Instructions
Iodine

5 Prepare your salt sample

- iCheck Iodine quantitatively analyzes iodine in salt. iCheck Iodine measurement range is 1.0 - 13.0 mg/L.
- If the expected concentration of your sample is above iCheck Iodine measurement range, dilute your sample in distilled or bottled water to fit the middle of the measurement range (i.e. 5 mg/L).
- Record the weight of the sample, the total diluted sample volume and calculate the dilution factor (DF): DF = (mL total sample volume)/(g sample weight).
- Total sample volume is the final volume of the sample that you obtain after mixing your sample with the water.
- For support with dilution and calculation please contact BioAnalyt Support at support@bioanalyt.com.

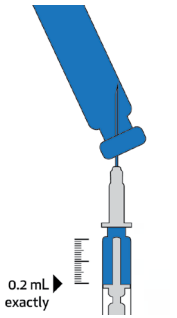
Weigh in your salt sample

- Place a weighing dish on the balance and press Z/T to 0 (tare) the weight of the dish. The display should show 0.0 g. Now you are ready to weigh your salt sample.
- Weigh in approximately 10 g of your salt sample and record the exact weight in your documentation.
- Next, measure or weigh in approximately 50 mL (or 100 mL) water. Record the exact weight in your documentation.
- Mix your salt sample with water until salt is completely solubilized. Measure and record the total sample volume for dilution factor calculation.

Important: The iodine concentration of the salt solution has to be in the measurement range of iCheck Iodine which is 1.0 - 13.0 mg/L.

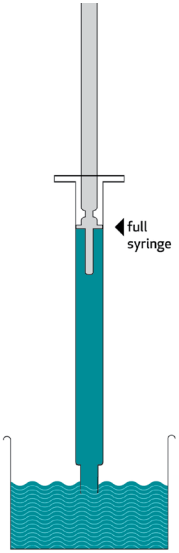
6 Activate the reagent vial

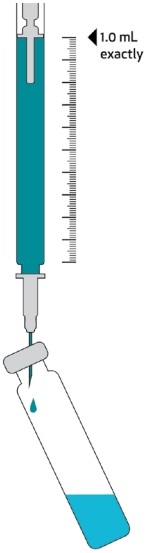
- Activate the iCheck Iodine reagent vial just before analysis by injecting 0.2 mL (200 µL) of the additive solution. The additive solution is supplied in the vials with blue top.
- To do so, slowly draw up 0.2 mL additive using the syringe with a needle. Push the needle through the red rubber septum of the additive vial. Draw up exactly 0.2 mL of the additive solution while holding the vial upside down. Make sure there are no air bubbles in the syringe.
- Take a new iCheck Iodine reagent vial and inject 0.2 mL additive solution into it. Invert the reagent vial 3 - 5 times to mix.
- The additive vial can be used to activate approx. 15 iCheck Iodine reagent vials. The syringe used to take up additive solution can be reused next time after rinsing it twice with water.



7 Inject your sample

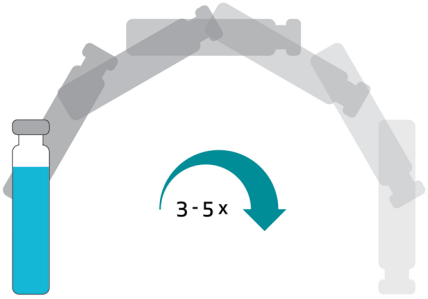
- Slowly draw up full syringe of your salt solution. Place the needle on the syringe. Hold the syringe with the needle pointing upwards and gently tap the syringe with your fingers to get the air bubbles to move up.
- Adjust the volume of the sample to exactly 1 mL (1000 µL) by ejecting excess volume into the paper tissue. Make sure no air bubbles are left inside.





Instructions
Iodine

- Slowly inject 1 mL of the salt solution into activated iCheck Iodine reagent vial through the red septum.
- Separate the syringe from the needle after injecting the liquid into the reagent vial without removing the needle. This will reduce the air pressure inside the vial. Then slowly extract the needle from the reagent vial.
- Invert the reagent vial 3 - 5 times to mix.

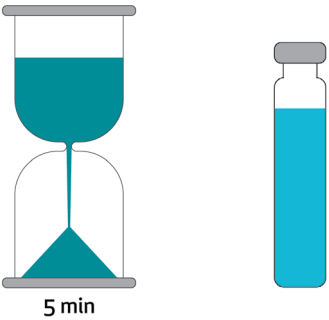


- If iodine is present in the salt sample the reagents in the vial will turn purple.

8 Reaction time

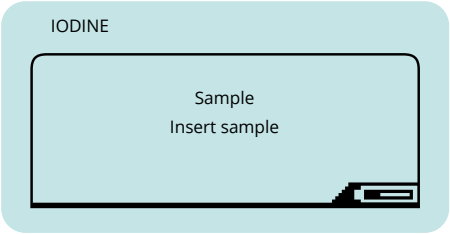
Wait 5 minutes

- Now let the vial stand still for 5 minutes.



9 Insert the vial

- Make sure your iCheck Iodine is in the “Sample” mode.
- Press the measurement key. The device will instruct you to “Insert sample”.



- Control the glass surface of the vial. If the glass is not clean, wipe it with a paper tissue before inserting into the iCheck.
- Be sure to hold the iCheck reagent vial only by its top. Insert the vial into the iCheck and cover the vial with the metal cap.

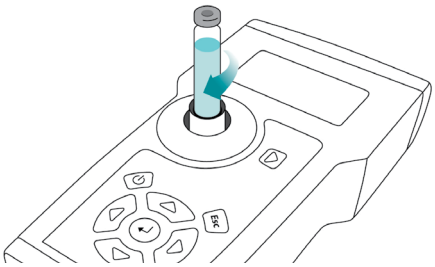
Important: Take care that no other objects, liquid or dust enters the measurement chamber. This would result in damaging the sensor and interfere with accurate measurement.

10 Start the measurement

- Press the measurement key again. This will initiate one of 4 measurements of your sample.

Reposition the vial

- When the display indicates “...next position”, the position of the vial must be changed in order to take another measurement.
- To do this, lift the metal cap, turn the vial in the chamber and cover the vial with metal cap again.
- Press the measurement key again.
- Repeat repositioning the vial as many times as indicated by the display.

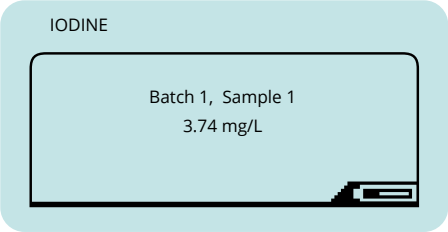


Note:
Turn the vial by ¼ of a turn. Repositioning and multiple measurements of the same vial increase the precision of your results.

Instructions
Iodine

11 Result display

- When the sample measurement has been completed, the iCheck Iodine calculates the average over the 4 measurements. The result is displayed in mg/L and indicates the total iodine concentration in the diluted sample.
- To calculate the iodine content in your solid salt sample, multiply the results by the dilution factor. For support contact BioAnalyt at support@bioanalyt.com.



12 Data storage

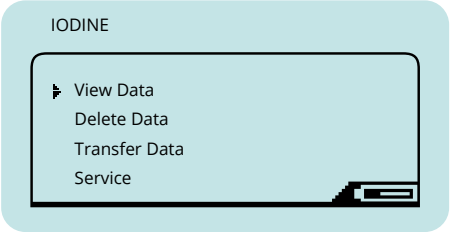
- For documentation purposes, iCheck Iodine has an internal memory to store up to 400 individual measurements including such information as batch number, sample number, date, time, and result.
- For detailed description of the data transfer to a computer please refer to the Data Transfer section.

13 Disposal

- Reagent vials do not contain any hazardous chemicals and are disposed of with common waste. Material safety data sheet (MSDS) of the reagent vials is provided with each shipment.
- Take extra care when disposing of the used needles to prevent injury: discard used needles into special container.

Menu
Functions

By pressing the enter key you enter the menu of iCheck Iodine. Using the arrow keys you can scroll through the different options on the menu and with the enter key you can choose a function.



View data

You can select the following options:

- View Samples
  To display individual measurement results.

Delete data

You can select the following options:

- Delete Sample
  To delete an individual result.
- Delete Batch
  To delete a batch with several measurements.
- Delete File
  To delete the file with all measurements performed on the device.
- Delete Memory
  To delete all measurements performed on the device.

Transfer data

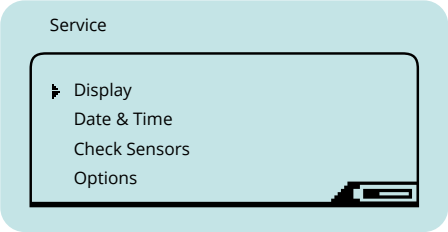
Use this function to transfer the data from the iCheck to your computer. Refer to the section “Data Transfer” in this manual.

Note:
Data menu function is only displayed after a minimum of 1 measurement. Data Transfer menu function is only displayed after a minimum of 2 measurements.

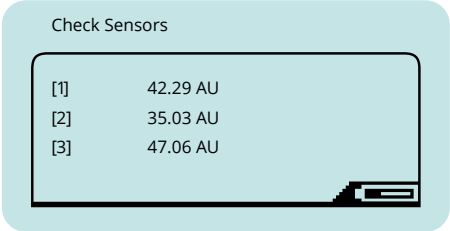
Menu
Functions

Service

To configure your iCheck you can select the following options:



- Display
  Set the brightness and contrast of the display.
- Date & Time
  Set the correct time and date of your time zone.
- Check Sensors
  Use this function when instructed by Bio-Analyt Support. To perform a check cover the measurement chamber with the metal cap. Select Check Sensors with the enter key. Record the values displayed by the device and send them to BioAnalyt Support.



Note:
The Calibration Data of your iCheck can be provided on request. For this contact BioAnalyt Technical Support at support@bioanalyt.com and provide the serial number indicated on the back of your device.

Software Installation

Software installation

- The data stored on your iCheck can be transferred to a computer. To do so, install *BioAnalyt Lab* software which is provided on the USB stick  .
- Initiate *BioAnalyt Lab* software set-up by double-clicking on the “Set-up” icon on the USB stick. Follow the instructions on your computer and make sure that *BioAnalyt Lab* is installed in the “Programs” directory. Create a shortcut to your desktop if you wish to. Finish installation by clicking “Finish”. The driver will automatically be installed.
- Upon accepting the License Agreement, a window will pop up where you can enter your personal information. This information can be viewed and edited by clicking on the “Settings” window.

Note:
BioAnalyt Lab software only works with Windows operating system (XP and later versions).

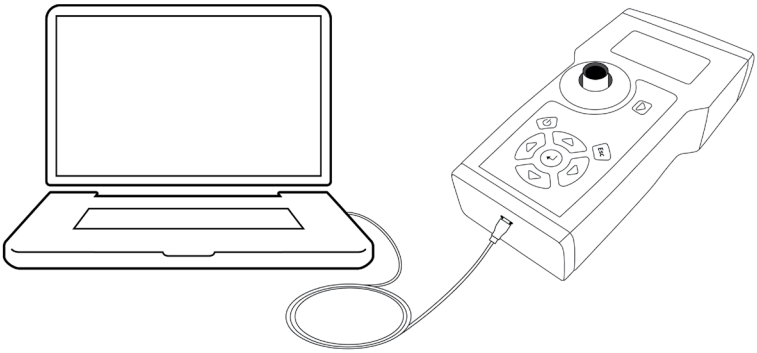
Software update

- *BioAnalyt Lab* software can be updated by clicking on the “Update” window. For the program to detect whether there are new updates available from BioAnalyt computer must be connected to the internet.
- If your current version (e.g. 1.1.0) is different from the newest version click on the “Update” key to proceed with the software update.

Data Transfer

- Start *BioAnalyt Lab* program by double-clicking the link on your desktop or by going to the Start Menu >> Programs >> BioAnalyt GmbH >> *BioAnalyt Lab* .
- Plug in your iCheck to your computer via USB cable. A configuration window will appear after you connect your device to the computer. Here you can enter the information about your device. The serial number of the device can be found on the back side of the iCheck.
- Now the information about iCheck is saved on your computer and will be displayed the next time you connect your iCheck to your computer. This way, information about multiple iCheck devices can be stored on your computer.
- To initiate data transfer click on “Start Transfer”. Wait for data transfer to proceed and the sign “Data Transfer in Progress” to disappear.
- Now, all your data is saved and listed under “Documents”. You can view, save and edit this data by clicking on the “Documents” window.
- To save your data in CSV or EXCEL format select the file in the “Documents”, select the format and save the files to the desired location.

Note:
The power supply unit or the laptop/PC must comply with appliance class III.



Technical Data

Quality assurance

iCheck and iCheck Iodine Test Kit are produced according to quality management system (DIN EN ISO 9001:2015) certified by TÜV Nord in Germany.

TECHNICAL DATA	
Sample	
Analyte:	Iodine as potassium iodate
Sample:	Table salt
Sample preparation:	Dilution in distilled or bottled water
Sample volume per analysis:	1.0 mL (1000 µL)
Concentration range:	>3 ppm (mg/kg), samples must be diluted in water; minimum dilution factor is 1:3
Device	
Analytical method:	Photometric determination of iodine concentration using colorimetric reaction
Units displayed:	mg/L
Linear range:	1.0 - 13.0 mg/L
Calibration:	Factory set (standards included for control)
Time per analysis:	< 10 min
Environment:	20 –30°C, no direct sunlight
Accuracy:	Maximum coefficient of variation is 8%; extended measurement uncertainty at 95% confidence at 25oC is 17%.
Method comparison:	Iodometric titration
User training:	1 day training
Use:	Laboratory and field
Data output:	Sample #, Batch #, Result, Date, Time (in transferred data)
Connectivity and data:	Results are stored in the device and transferred to a PC via USB
Power source:	NiMH rechargeable batteries included; AA 1.2 or 1.5V
Warranty:	2 years
Device weight:	0.45 kg
Device dimensions:	11 x 4 x 20 cm (W x H x L)
Voltage (Recommended)	5V ±10%
Voltage (Max.)	5.5V
Test Kit	
Content:	100 reagent vials and 20 additive vials; 120 syringes - 1.0 mL; 120 needles - 0.8mm x 16mm
Chemical composition:	Starch, potassium iodide, phosphoric acid
Volume per reagent vial:	1.9 mL
Shelf life:	12 months at 20 –30°C, no direct sunlight, upright
Dimension of test kit:	26 x 14.5 x 16.5 cm
Disposal instructions:	Non-hazardous waste
Optional equipment:	50 mL falcons, weighing dishes, reference samples

Frequently Asked Questions

Power supply

iCheck does not turn on.

Make sure that the batteries are fully charged. In the lower right corner of the display a battery symbol is shown indicating the remaining battery charge. To recharge the batteries, place them in the charger provided in the case, connect it to a power supply and wait until the light turns green, indicating that power is at 100%. Place the batteries back in the device, switch it on. If iCheck is still not turning on, please contact BioAnalyt Support.

May I use other batteries?

You may use other AA/2100mAh/1.2V batteries. However you cannot recharge those in the supplied charger.

What is the overvoltage category?

The overvoltage category is I .

Measurement

The self-test failed when I switched on the device. What should I do?

If the self-test fails, switch the device off and on again. If after restarting the self-test fails, contact BioAnalyt Support.

During Device Control the value displayed is outside the range. What should I do?

If,during Device Control, the value is outside the range indicated on the back of your device, measure again. If the value is out of range again, please contact BioAnalyt Support.

Do I need to calibrate iCheck Iodine?

No, there is no need to calibrate iCheck Iodine, because the device is calibrated during the manufacturing process and calibration is programmed into the software.

The result I received for a sample is higher/lower than expected. What might be the reason for this?

1. Incorrect activation of the reagent vials:
It is very important, that the exact amount of additive is added to the reagent vials.

2. Incorrect volume:
Make sure that exactly 1000 µL (1.0 mL) of dissolved salt is injected into iCheck Iodine reagent vial.

Frequently Asked Questions

Measurement

3. The result can be additionally influenced by environment, sample preparation and skills of the operator.

4. The operator was not well trained. Contact BioAnalyt to obtain training and iCheck certification.

What might interfere with the measurement procedure?

1. Unclean vial surface:
Make sure the reagent vial you are measuring is absolutely clean and does not have any fingerprints on it. If not, wipe the vial with a paper tissue (optional: wet the tissue with alcohol to improve the cleaning).
2. Sunlight:
Do not measure in direct sunlight.

How should I store the reagent vials?

iCheck reagent vials must be stored upright at room temperature and protected from direct sunlight.

Do temperature or humidity influence the iCheck measurements?

1. It is recommended to measure at an ambient temperature between 20 - 30 °C (68 - 86 Fahrenheit). Do not use iCheck at temperatures above 40 °C or at altitude above 2000m.
2. It is further recommended to store the iCheck and the iCheck reagent vials at least two hours before starting the measurement in the room in which the measurement will be performed. This procedure ensures that both, the vials and the device have the same temperature.

3. The device can be used indoors or outdoors, as long as there is no direct sunlight.
4. Maximum relative humidity of 80 % at 30 °C.

What is a batch and how can I select a new batch?

For selecting a new batch press the right arrow key. The batch function is used to group samples, e.g. samples from 1 day or 1 region can be measured in batch 1. If you proceed to measure the samples of a different day or region, select a new batch (i.e. 2).

Frequently Asked Questions

General

Which form of iodine can be measured?

Typically, salt is fortified with compounds such as potassium iodate (KIO_3), sodium iodate ($NaIO_3$), potassium iodide (KI) or sodium iodide (NaI). iCheck Iodine has been validated to measure iodate forms only.

Does the Data Transfer work with other operating systems like Apple OSX etc.?

No, BioAnalyt Lab may only be used with Windows Operating System.

How can iCheck Iodine test kits be ordered?

An order can be placed by visiting the BioAnalyt website www.bioanalyt.com or by sending e-mail to contact@bioanalyt.com.

What is the pollution degree for this equipment?

The expected pollution around iCheck was established in the standard of degree 2: Normally only nonconductive pollution occurs. Ocasionally, however, temporary conductivity caused by condensation maybe be expected .

Where do I get help with other questions that are not mentioned here?

We would love to hear from you! Please send us an e-mail at support@bioanalyt.com.

You can also join the discussion by following us:
www.facebook.com/bioanalyt
www.linkedin.com/company/bioanalyt

USB Stick

Find the *BioAnalyt Lab* Software and further product information on the USB Stick.

BioAnalyt

measure for life

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contact@bioanalyt.com · www.bioanalyt.com