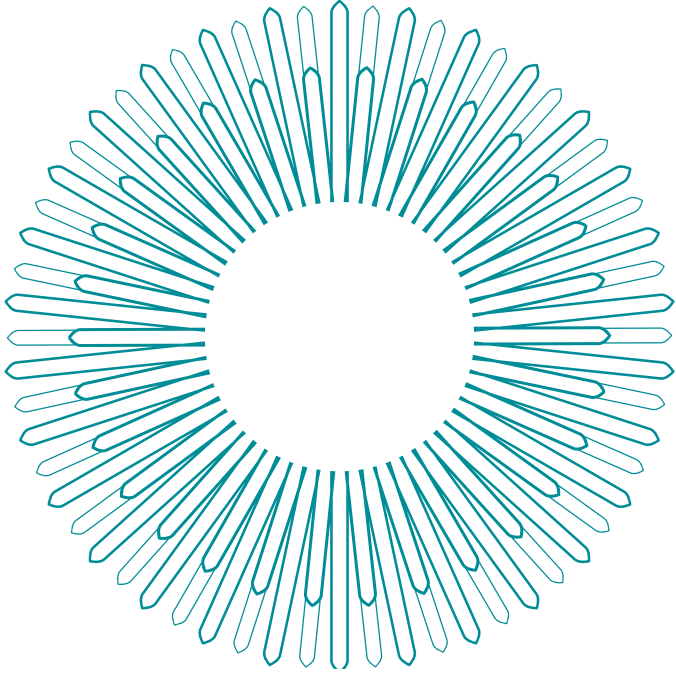# User Manual

iCheck
Vitamin E

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

BioAnalyt

Quality
Guarantee

Dear customer,
Congratulations on your acquisition of iCheck™ Vitamin E!

iCheck Vitamin E will be your reliable partner for vitamin E analysis. iCheck is a high-tech portable fluorometer with precise and reliable results.

iCheck is produced following strict quality standards according to ISO 9001:2015. This is accomplished by using high-grade components and equipment as well as a streamlined production process. During this process, quality controls are performed on all components and rigorous calibration is performed by trained technicians with standards produced according to ISO 17025.

Your iCheck Vitamin E 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 (0)33 28 35 15 000** or sending an e-mail to **support@bioanalyt.com.**

www.bioanalyt.com
Linked in **www.linkedin.com/company/bioanalyt**

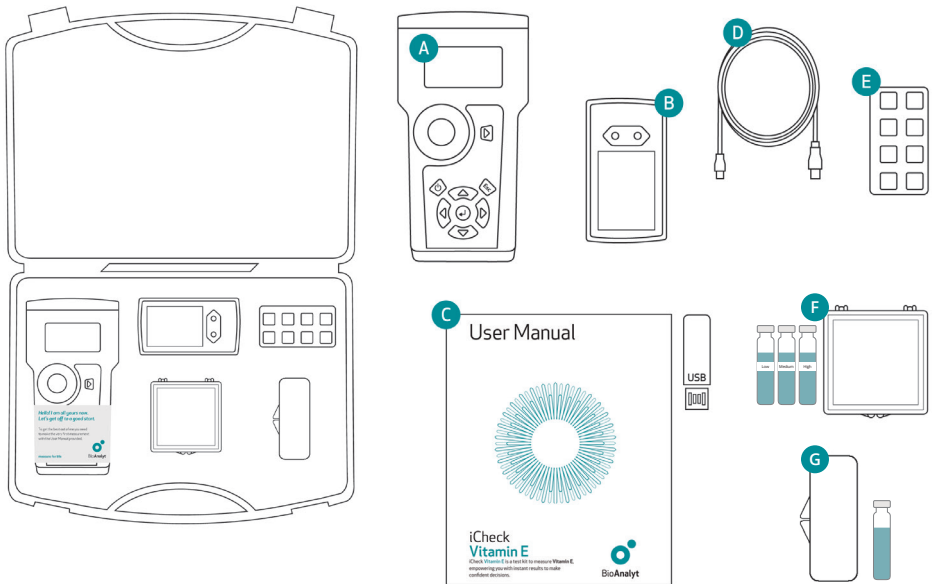CE   ISO 9001 TÜV NORD CERT GmbH   TOP 100   TOP 100

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.
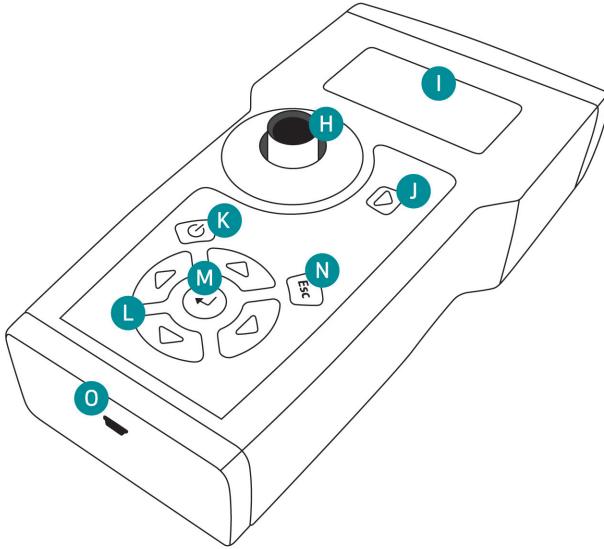
Contents

Check your
Case Content

A — iCheck Vitamin E 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 — Stand for reagent vials

F — 3 Calibration Standards

G — Vitamin E Standard

Device
Description

H Measurement chamber for iCheck
   Vitamin E reagent vials with removable
   metal cap (not shown)

I Display monitor

J Measurement key

K Power key (On/Off)

L Menu Navigation keys: left, right, up, down

M Enter (OK) key

N Escape key

O 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,
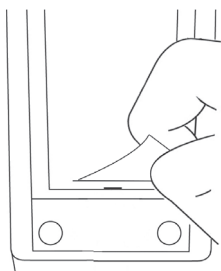press the escape key.

Not shown:
Battery compartment on the bottom side.

Instructions
Vitamin E

1 Insert the batteries

- The iCheck is equipped with 4 rechargeable 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.

Important: iCheck must be used with charged batteries at all times. It is not recommended to perform any measurement using the USB cable.

2 Switch on the device

- Start by placing the iCheck on a flat and stable surface. Make sure the metal cap covers the measurement chamber.
- Switch on your iCheck by pressing the power key.
- You are automatically in the "Device Control".
- The iCheck has an energy-saving function. 10 minutes after the last keystroke the fluorometer will switch off automatically.

3 Control the device

- Perform a calibration control of your iCheck Vitamin E before each measurement set.
- To do so, use the Vitamin E Standard vial provided in your iCheck case.
- The Vitamin E Standard must be stored upright in its casing at room temperature. The expected value is indicated on the casing.

Measure Vitamin E Standard

- Press the measurement key. The device will display "Insert Standard".
- Carefully remove Vitamin E Standard from its casing. Control the glass surface of the vial. If the glass is not clean, wipe it with a paper tissue before inserting it into the iCheck.

- Remove the metal cap and place the Vitamin E Standard into the measurement chamber and cover it with the metal cap.
- Press the measurement key and wait for the device to display a value.
- Control that the value displayed by the device is within the range indicated on the casing of the Vitamin E Standard.
- If the value is outside the indicated range, repeat the measurement. If the value remains outside the indicated range, perform the User Calibration. Follow the instructions in the section User Calibration on page 10. For further assistance, contact **support@bioanalyt.com**.

4 Inject your sample

- iCheck Vitamin E quantitatively analyzes vitamin E in whole blood and serum. iCheck Vitamin E measurement range is **1.0 - 25.0 mg/L**.
- Mix your sample well. Use a new syringe without a needle and take up approx. 0.7 mL of the sample. Clean the end of the syringe with a paper tissue. Place the needle in the syringe.
- Hold the syringe with the needle pointing up and gently tap the syringe with your fingers to get the air bubbles to move up. Adjust the volume of the sample to exactly 0.5 mL (500 μL). Make sure no air bubbles are left inside.
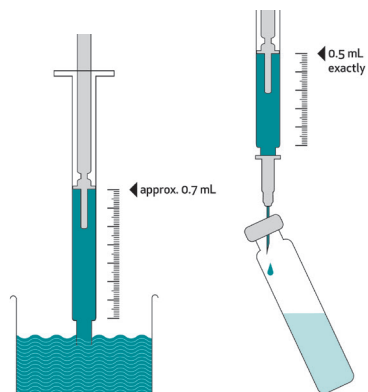
- Slowly inject 0.5 mL of the sample solution into the new iCheck Vitamin E reagent vial through the red septum.

Instructions
Vitamin E

- **<u>Vigorously</u>** shake the vial for 10 seconds.

Shake vigorously for minimum 10 seconds

5 Extraction time

Wait 5 minutes

- Now let the vial stand still for minimum 5 minutes for the extraction of vitamin E into the upper phase. After waiting, the solution in the vial should appear in two distinct phases.
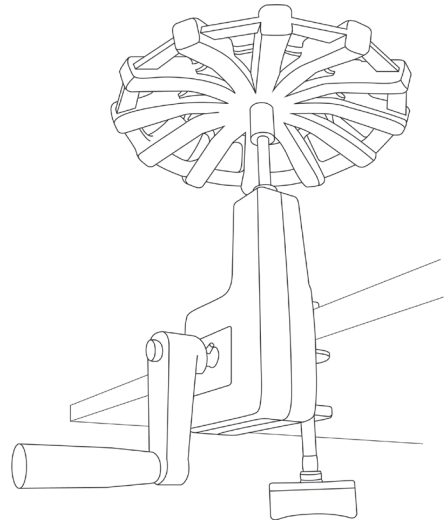

5 min

approx. 0.8 cm

6 Check phase separation

- To proceed with the measurement, you must observe a clear upper phase of approx. 0.8 cm.
- If you do not observe a clear upper phase, then briefly centrifuge the vial at low speed (approx. 300 rpm) for 1 minute.
- Portable hand centrifuge can be purchased from BioAnalyt.

7 Select your sample type

- Choose your sample type on your iCheck Vitamin E by pressing the left navigation key and selecting one of the following options: "Other Sample", or "Whole Blood Sample".

- Now you are ready to proceed with measurement.

VITAMIN E

OTHER SAMPLE
Batch 1
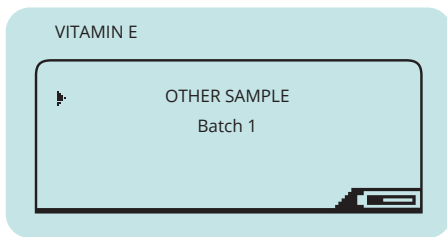
8 Insert the vial

- Make sure your iCheck Vitamin E is in the right measurement mode. It must be Whole Blood Mode to measure cattle whole blood sample or Other Sample if i.e. serum is being analyzed.

- 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 measurement chamber into the iCheck and cover the vial with the metal cap.
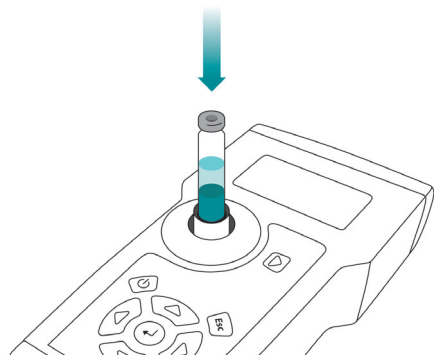
Important: Take care that no other objects, liquid or dust enters the measurement chamber. This would result in damaging the sensor and interfere with accurate measurement.

Instructions
Vitamin E

9 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 measurement chamber and cover the vial with metal cap again.
- Press the measurement key again.
- Repeat repositioning of the vial as many times as indicated by the display.
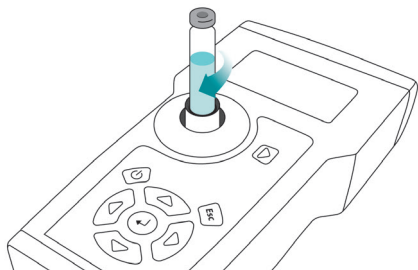
Note:
Turn the vial by ¼ of a turn. Repositioning and multiple measurements of the same vial increase the precision of your result.
A new Vitamin E Standard can be purchased from BioAnalyt. For further information, contact BioAnalyt Support at support@bioanalyt.com.

10 Result display

- When the sample measurement has been completed, iCheck Vitamin E calculates the average over the four measurements. The result is displayed in mg/L.
- If you diluted your sample before measurement, then multiply the result with the dilution factor. For support contact BioAnalyt at **support@bioanalyt.com.**

Whole Blood Sample

Batch 1, Sample 1
3.5 mg/L

When you measure your whole cattle blood sample under "Whole Blood Sample" mode the displayed result is corrected with the average hematocrit level in cattle blood of 32%. Therefore no further calculations are necessary.

11 User Calibration

- Perform User Calibration when the Vitamin E Standard reading on your iCheck Vitamin E device is outside the range indicated on the Vitamin A Standard casing.
- To do so, use the three Calibration Standards vials provided in your iCheck case.
- The three Calibration Standard vials must be stored in their casing at room temperature.

Perform User Calibration

- Using the left and right navigation keys, enter "User Calibration" mode.

- Press the measurement key. Follow the instructions as indicated on the display. The display will indicate "Insert LOW Std."

- Carefully remove the Calibration Standard with the blue top labeled LOW.

- Control the glass surface of the vial. If the glass is not clean, wipe it with paper tissue before inserting into the iCheck.

- Remove the metal cap on iCheck and place the LOW Calibration Standard into measurement chamber and close it with the metal cap.

- Press the measurement key again. This will initiate one of 3 measurements of your Calibration Standard.

- Reposition the vial as indicated by the display. Follow instructions in the section "Start the measurement > Reposition the vial".

- When the measurement with LOW Calibration Standard is done, the device will display "Insert MEDIUM Std.".

- Remove the LOW Calibration Standard and put it back in its case.

- Place the MEDIUM Calibration Standard carefully in the measurement chamber, cover it with the metal cap and press the measurement key. Follow the same procedure as for the LOW Calibration Standard.

- Remove the MEDIUM Calibration Standard and put it back in its case.

- Place the HIGH Calibration Standard carefully in the measurement chamber, cover it with the metal cap and press the measurement key. Follow the same procedure as for the

LOW Calibration Standard. Standard.

- If the User Calibration is done successfully, the display will indicate "Calibration completed".

- If the User Calibration fails, repeat the procedure. If it remains failed, contact **support@bioanalyt.com**.

Important: Each individual set of Calibration Standards is produced for one individual iCheck device.

12 Data storage

- iCheck Vitamin E has an internal memory to store up to 600 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 contain hazardous chemicals and are disposed of according to national regulations for hazardous materials. Collect the vials in a container and hand them over to a chemical waste company. Material safety data sheet (MSDS) of the reagent vials is provided upon request.

- Ensure that used needles are disposed of properly to avoid sharp injuries: discard used needles in a special container.

Menu
Functions

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

```
VITAMIN E

▶ View Data
  Delete Data
  Transfer Data
  Service
                          [====]
```
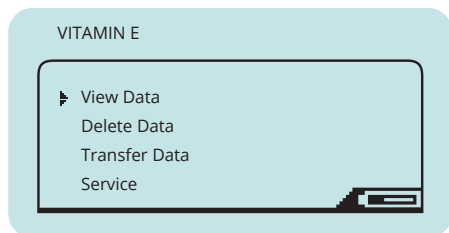
View data

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 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.

Service

To configure your iCheck you can select the following options:

```
Service

▶ Display
  Date & Time

                          [====]
```
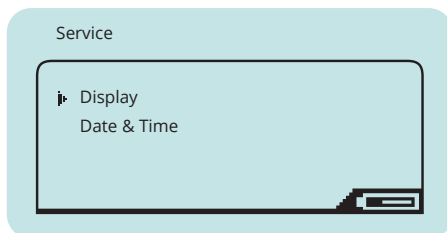
- *Display*
  Set the brightness and contrast for the display.
  Date & Time
  Set the correct time and date of your time zone.

Note:
The Certificate of Calibration of your iCheck can be provided on request. For this contact BioAnalyt Support at support@bioanalyt.com and provide the device 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. 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:
Power supply units and laptops/PCs must comply with appliance class III.
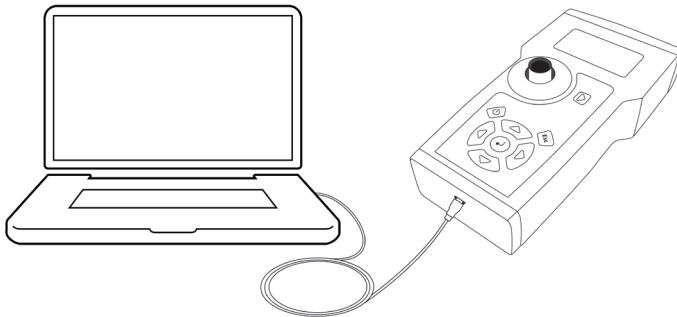
Technical
Data

Quality assurance

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

TECHNICAL DATA	
Sample	
Analyte:	Alpha tocopherol
Sample type:	Cattle, Swine, Equine and Poultry blood
Sample preparation:	Not necessary
Sample volume per analysis:	0.5 mL (500 µL)
Device	
Analytical method:	Autofluorescence of alpha tocopherol
Units displayed:	mg/L
Linear range:	1.0–25.0 mg/L
Calibration:	Factory set; if the Device Control readings are out of range then user can update calibration using the Calibration Standards provided with the device.
Time per analysis:	< 10 min
Environment:	20–30°C, no direct sunlight
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)
Test Kit	
Content:	100 reagent vials; 100 syringes - 1.0 mL; 100 needles - 0.8mm x 16mm.
Chemical composition:	n-Hexan and alcohols
Volume per reagent vial:	2.0 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:	Hazardous waste

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, and 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 with the supplied charger.

What is the overvoltage category and what does it indicate?

The overvoltage category is a designation used to indicate the maximum voltage level that an electrical device or system can withstand before it may experience damage or malfunction. The overvoltage category is classified into several levels, ranging from I to IV, with each level representing a different level of protection. In iCheck Vitamin E device the overvoltage category is I .

Measurement

Do I need to calibrate iCheck Vitamin E?

iCheck Vitamin E devices are calibrated during production. If the Device Control readings with your iCheck device are out of range then it is recommended to perform User Calibration. This calibration should be carried out using the three Calibration Standards provided with the device.

Detailed instructions on how to perform the calibration can be found on page 10 of this User Manual. Please note that these Standards were developed exclusively for your device.

For how long should the Calibration Standards be used?

The Standards have no expiration date; however, they are provided with a production date. You can calibrate the device at any time, but we recommend to send to us your devices together with Calibration Standards every 2 years.

Can I bypass user calibration and continue measuring?

If your Device Control reading is outside the range indicated on Vitamin E Standard case, you must perform User Calibration as indicated in Section 11 of this manual. If you do not perform this calibration then the measurement results with your samples may not be accurate.

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

1. Incorrect volume:
Make sure, that exactly 500 μL (0.5 mL) of the homogenized sample is injected into iCheck Vitamin E reagent vial.

2. The operator was not well trained. Contact BioAnalyt to obtain training.

What might interfere with the measurement procedure?

1. Incorrect sample extraction:
It is very important, that the extraction and phase separation has occurred. Shake the vial with sample vigorously. It is OK to shake it more than once. Then wait for few minutes again and make sure there is clear upper phase.

Frequently Asked
Questions

Measurement

2. 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 cleaning).

3. Sunlight:
Do not measure in direct sunlight.

How should I store the reagent vials?

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

Do temperature or humidity influence the iCheck measurements?

Please follow these conditions to operate iCheck safely:
1. Altitude up to 2 000 m;

2. 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.

3. 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.

4. The device can be used indoors or outdoors, as long as there is no direct sunlight.

5. Maximum relative humidity of 80 % at 30 °C.

Can I use iCheck in wet conditions?

No, the device is not intended to be used in wet conditions. Condensation must be avoided.

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).

General

Which form of vitamin E can be measured?

iCheck Vitamin E measures alpha-tocopherol the form of vitamin E present in cattle, poultry, equine and swine blood.

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

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

What is the pollution degree for this equipment?

The expected level of pollution around iCheck has been set to degree 2: only nonconductive pollution typically occurs. Occasionally, however, temporary conductivity caused by condensation may be expected.

How can iCheck Vitamin E test kits be ordered?

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

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 via Facebook or LinkedIn.

Linked in **www.linkedin.com/company/bioanalyt**

USB Stick

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