



Operating instructions

for the NIR analysis system

Apo-Ident 2.1

based on version 2.10



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1. Starting the programme

Start the "QuickStep Apo-Ident" programme by double-clicking on the desktop icon. The Apo-Ident user interface opens.

Note: If the internal appliance temperature is too low, a warm-up programme is started automatically. Once the temperature has reached at least 20°C, the system is ready to start.

2. Choice of pharmacy

Under **Pharmacy**, select the pharmacy that should appear on the test report if you have stored several configuration profiles.

Note: You can find out how to create a configuration profile in our detailed operating instructions in **section 1.5.1**.

3. Selection of the substance

Under **Substance**, enter the name of the starting substance to be tested in the search field, e.g. sodium calcedetate. The monograph name, the Latin name, synonyms stored in the database and the classifier, in this case "Medicinal substances, solid", will now be displayed.

Note: The software displays suggestions as soon as you enter the first few letters. Select the correct substance from the suggestions.

Help: If the substance is clearly testable, the search field changes colour to green after entry. All information on colour coding can be found in **section 2**.

4. Measurement depending on substance class

4.1. Solid medicinal substances and solid BtM medicinal substances

Start the measurement

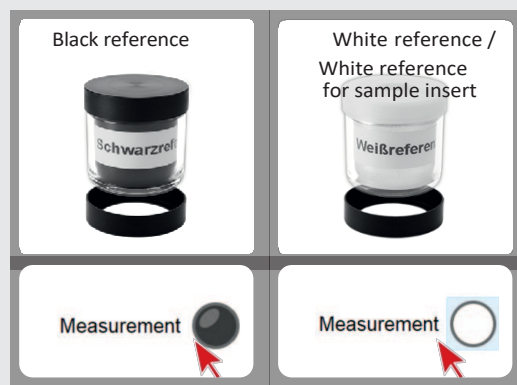
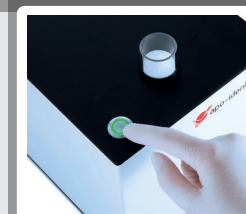
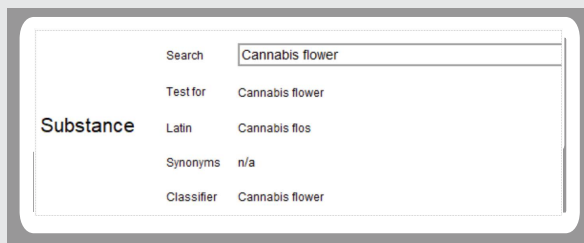
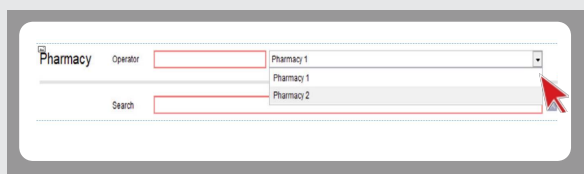
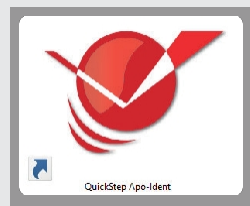
First place your **sample vial with the substance** (filling height 4 mm) and the **adapter ring** on the measuring point. Start the measurement process by clicking on the blue button next to **Measurement** or by pressing the measurement button (lights up green) directly on the top of the device.

Note: All solids can also be identified with a smaller amount of substance. The corresponding procedure can be found in our detailed operating instructions in **section 2.1.1**.

Referencing

After the first substance measurement, you will be prompted to set up and measure the reference standards. Follow the instructions of the software and first place the black reference, then the white reference or, if necessary, the white reference for the sample insert on the measuring point. Start the reference measurements by clicking on the black or white button next to **Measurement** or by pressing the measurement button directly on the top of the device.

Note: Please always use the black adapter ring. The measurement of the references is requested again by the software after approx. 60 minutes.



4.2. Drugs Semi-solid/liquid

Stamp plate measurement

Start with the plunger measurement. Place the clean **measuring stamp** with the feet facing downwards in a clean, **empty sample glass**. Together with the **adapter ring**, place the glass with the measuring stamp on the measuring point of the Apo-Ident. Start the **stamp cell measurement** by clicking on the grey button or by pressing the button directly on the device.

Important: Both the stamp pellet measurement and the measurement of the liquid/semi-solid substance must be carried out with the same measuring stamp and sample glass. Otherwise, non-identification may occur.

Note: After a successful stamp cell measurement, a time window of 5 minutes is provided for starting the substance measurement. If the measurement is not completed within this period, the stamp cell measurement must be repeated.

Referencing

After the stamp cell measurement, you will be prompted to set up and measure the reference standards.

Please note the information on referencing under 4.1. of the Quick start guide.

Start the measurement

Place your **sample vial with the substance**, the **measuring plunger** and the **adapter ring** on the measuring point. Start the measurement process by clicking on the blue button next to **Measurement** or by pressing the measurement button (lights up green) directly on the top of the device.

Note: Make sure that you press the measuring plunger onto the bottom of the sample glass with the feet facing downwards so that no air bubbles are visible, but all 3 plunger feet are visible.

4.3. Identification and content determination from cannabis flowers

To check the identity of cannabis flowers according to chemotype (THC type, THC/CBD type or CBD type), select one of the cannabis flower entries in the search (green dot). To determine the content of THC and CBD (quantification) in cannabis flowers, select the corresponding entry in the search (white dot).

Identification of cannabis flowers

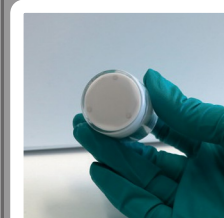
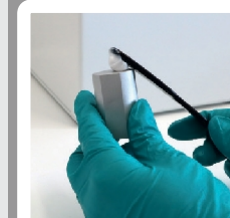
A note follows with the recommendation to carry out a macroscopic and microscopic examination. It is recommended that the results are then entered in the Additional test field. The further procedure is described on page 6.



Measurement



Place the transfectance insert feet facing down in an empty sample container and use them for the next measurement too



Measurement



Place the selected substance on the device.

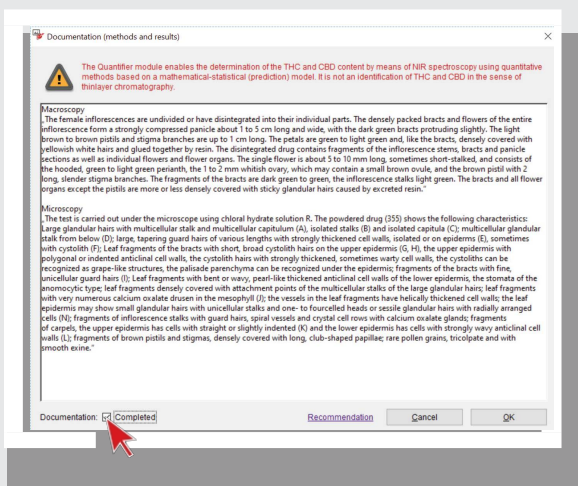
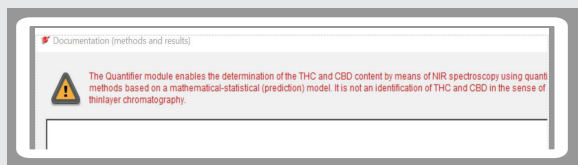
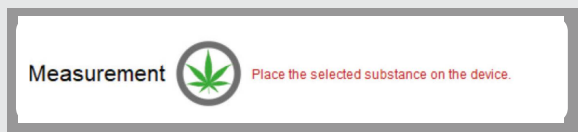
Determining the content of cannabis flowers

First place your sample jar with the cannabis flower (if possible, stem upwards to get a large contact surface in the jar) and the adapter ring on the measuring point. Start the measurement process by clicking on the Cannabis button next to Measurement or by pressing the measurement button (lights up green) directly on the top of the device.

The **"Documentation (Methods and Results)"** window now appears. Please read the text **"The Quantifier module enables the determination of the THC and CBD content by means of NIR spectroscopy using quantitative methods based on a mathematical-statistical (prediction) model. It is not an identification of THC and CBD in the sense of thin-layer chromatography"**.

In the following text field, enter the steps you have carried out in advance and the result of the identity check. You can view help on macroscopy and microscopy under [Suggestion](#). After you have entered the documentation and the associated identity check, the box

"Documentation: performed" can be clicked. Click OK to close the window and start the measurement.



Referencing

After the first measurement, you will be prompted to set up and measure the reference standards. Follow the software instructions and first place the black reference and then the white reference on the measuring point. Start the reference measurements by clicking on the black or white button next to Measurement or by pressing the measurement button (lights up green) directly on the top of the device.

Note: Please always use the black adapter ring. The measurement of the references is requested again by the software after approx. 60 minutes.

5. Output of the result

Identification of precursors and cannabis flowers:

After a few seconds, the device will show you whether the substance has been identified.

Note: If the result is negative, please display the additional information on non-identification. Check or repeat your measurement procedure accordingly.

Determination of the content of cannabis flowers:

After a few seconds, the device will show you the THC-, the CBD-content and the type classification of your measured cannabis flower.

6. Measurement data

After a successful measurement, complete all mandatory fields (outlined in red) next to Sample and under Pharmacy> Tester. If required, you can fill in Remarks and Additional test under Result.

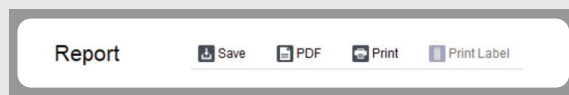
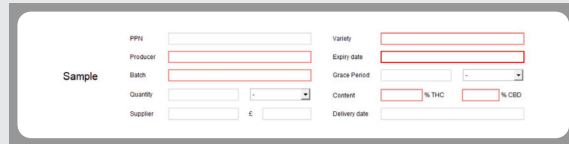
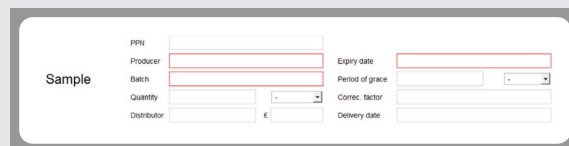
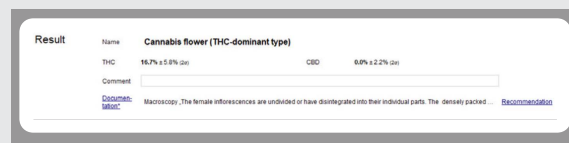
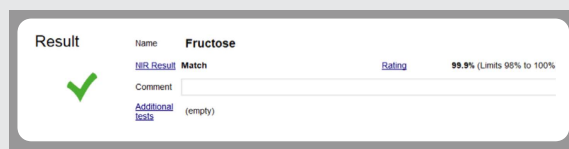
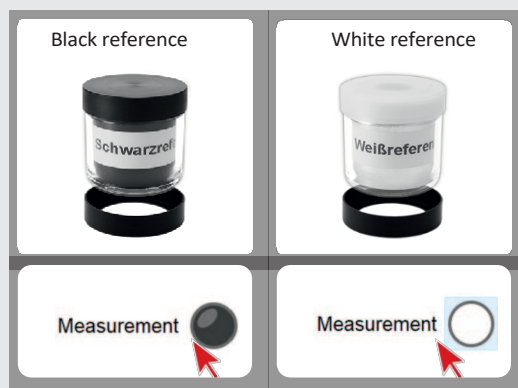
When determining the content of cannabis flowers, it is also possible to make a **comment** and to call up the documentation or the proposal for macroscopic and microscopic examination again.

Please note that only after filling in all mandatory fields the protocol can be created.

7. Creating the protocol

You can now save the measurement process, display the test report as a PDF file or print it.

Note: Regardless of which of the functions you select, the measurement process is always saved. You can also print out your test label on your label printer.



1. First steps

1.1. Safety instructions

Please read the safety instructions carefully.

- Only use the mains adapter or mains cable supplied.
- If the mains connection cable or power supply unit is defective or faulty, contact the manufacturer immediately. Operation with a defective mains cable or power supply unit can be life-threatening.
- Environmental influences such as high temperatures and high humidity must be avoided, as must dust, dirt and aggressive gases.
- The installation location should be a well-ventilated place that is not exposed to direct sunlight. Install the appliance on a non-flammable, level surface that does not transmit vibrations.
- Ensure that no objects or liquids enter the appliance. If this happens, disconnect the appliance from the mains immediately and contact the manufacturer.
- Do not open the device. There are no objects damaged by the User serviceable parts in the appliance.
- Do not operate the appliance in explosive or highly flammable atmospheres. Atmosphere.
- Apo-Ident is often used for the determination of hazardous substances. This type of work should only be carried out by qualified personnel. If you are not completely sure, contact your supervisor or a competent expert.

1.2. Installation of the software

- Connect the supplied USB stick to your PC.
- Drag the "Apo-Ident" folder onto your desktop and open the "Current software" folder in it. Start the installation by double-clicking on QuickStep_*.exe. Read and accept the licence conditions. Follow the setup wizard.
- Then double-click on the IdentModul_*.exe file. Read and accept the licence conditions. Follow the setup wizard.
- Now install the Quantifier module by double-clicking on the QuantifierModul_*.exe file. Read and accept the licence conditions. Follow the setup wizard.
- If the respective modules have been installed correctly, update certificates will be displayed. Save the certificates in the "Apo-Ident/Update certificates" folder.

1.3. Setting up the analyser

Apo-Ident 2.1 requires a mains connection and optionally a PC/laptop (system requirements see **section 6.1**) with Apo-Ident software installed. Connect the supplied desktop power supply unit (100 V to 240 V~ and 50/60 Hz) to a power socket using an IEC cable and then plug the small round plug of the desktop power supply unit at the back of the device into the socket labelled 12V IN designated connection.

Connection via USB cable

Use the USB cable supplied to establish a connection between a USB socket on your PC/laptop and the type B USB socket on the back of the Apo-Ident device. Switch on the device using the toggle switch on the back of the device. The signal light in the control button on the top of the device lights up red. Apo-Ident is now ready for use.

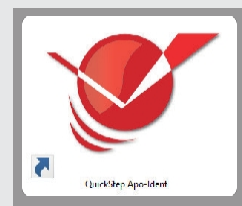
1.4. Starting the programme

Start the "QuickStep Apo-Ident" programme by double-clicking on the desktop icon. The Apo-Ident user interface opens.

Note: *If the internal appliance temperature is too low, a warm-up programme is started automatically. Once a temperature of at least 20°C has been reached, the system is ready for operation.*

1.5. Apo-Ident Settings

When you start the programme for the first time, the settings open automatically. A demo profile is stored by default, which is used for presentations. **However, you cannot create valid test reports with the demo profile!**



1.5.1. Settings for the protocol

Settings> Settings for the protocol> To create your **protocol** own profile, click on the **configuration profile** on the right on the "+ "-sign.

Enter the name of your pharmacy as the profile name and confirm with **<OK>**.

Another window will open in which you will be asked to enter your licence key.

Note: If you use Apo-Ident in more than one pharmacy, you need a separate licence key for each pharmacy and must create a separate configuration profile for each pharmacy.

The licence key will be inserted for new customers by our sales force on delivery.

You will find this later as a PDF on the desktop in the "Apo-Ident" folder under "Licence documents" or on the USB stick supplied.

You will need your licence key again in the following cases:

- New installation
- Computer change

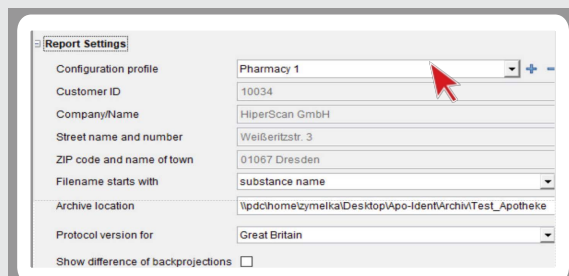
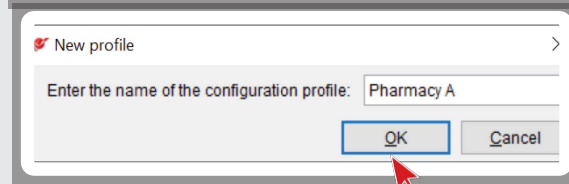
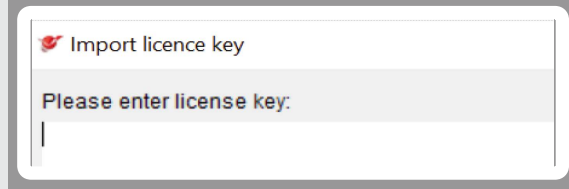
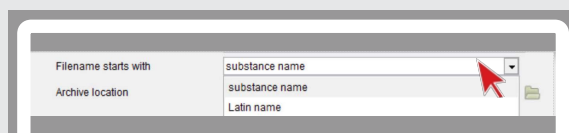
If you are missing your licence key or if you need support, please contact our customer service on the telephone number +49 351 212 496 33 or by e-mail to kundenservice@apo-ident.de.

File name starts with > Here you select whether the "Primary substance name" (German) or, if available, the "Latin substance name" should be used in the file name of the test protocol.

Storage location of the archive > If a a profile is created, the software automatically saves the archive (test protocols) on the desktop under: *Desktop/Apo-Ident/Archive/Profile_Name1*

If a second profile is created, the software saves the second archive also automatically under: *Desktop/Apo-Ident/Archive/Profile_Name2*

This ensures that multiple profiles are not stored in the same archive and avoids errors when retrieving the archive.


Note: During the initial installation by our field service, the "Apo-Ident" folder structure is created for you, in which the archive is integrated. If you would like to specify a different storage location, first move the entire "Apo-Ident" folder from your desktop to the new storage location. This can be a local drive or a network drive on your PC. You can change the archive directory by going to Settings, Log settings at

Click on the folder icon under "Archive storage location". In the "Select archive directory" window that opens, select the relevant drive on the left and the folder to which you have moved the "Apo-Ident" folder on the right. Then double-click on the "Apo-Ident" folder, then double-click on "Archive" and now on your pharmacy profile. Now click on "Apply" at the bottom right. By closing the settings, your changes will be transferred. In the menu bar, you can use the "Archive" button to check whether the new path has been applied.

Protocol management by > You only need to make changes if you are working with the *Dr Lennartz laboratory programme for pharmacies*. How to integrate this interface is explained in more detail in **section 4.7**.

Protocol version for > Use this function to select the language or form of the test protocol for the selected profile. The setting affects both the report header and the label printout.

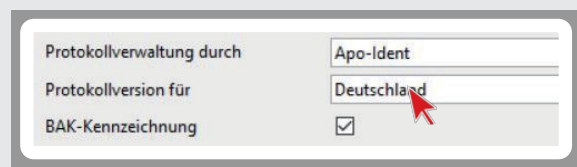
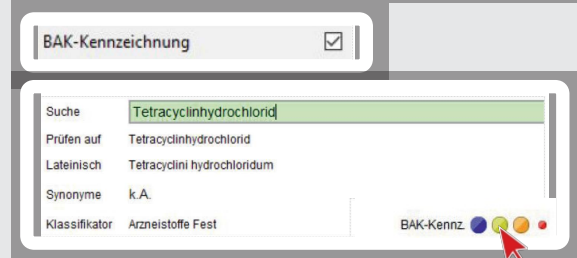
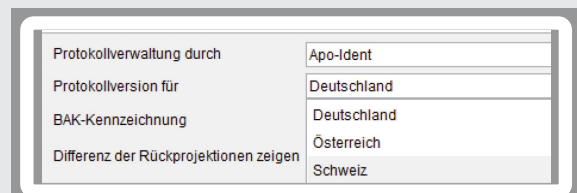
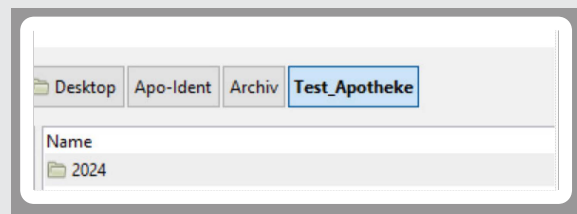
BAK labelling> By activating this function, you can carry out BAK labelling for your substances and identify them on the test report and the test label. After entering the substance name in the search field, the software first displays suggestions for BAK labelling. If these do not match your BAK labelling, you can change the labelling by clicking on the relevant coloured dot. A large dot means that the labelling is active and is therefore shown on the test report and the test label. A small dot means that the labelling is inactive and is therefore not displayed. Changes to the labelling are automatically saved for later measurements.

This function is not available to you if you have saved your profile under **Protocol management by: Dr Lennartz laboratory programme** in your profile or if you have selected the protocol version for "Austria" or "Switzerland". The setting can be made individually for each profile.

Show difference in back projection> s. Section 4.3.

Additional check as mandatory field> s. Section 2.3. printout of validation in the protocol> s. Section 4.5.

Note: If, after checking and saving the log, you notice that the log version needs to be changed, the check must be repeated after changing the necessary settings.



1.5.2. WLAN/LAN- Settings

Please leave these settings as they are by default. If you have any questions, please contact customer service by e-mail at kundenservice@apo-ident.de or by phone at + 49 351/212 496 33.

1.5.3. Settings for the IdentModule

Please leave these settings as they are by default (identification: "Local IdentModule").

1.5.4. Software Update

To check whether new software updates are available for Apo-Ident, click on **Help > Check for updates**.

Apo-Ident automatically searches the Internet for new software Updates. This function is activated by default.

A pop-up window informs you of new software updates and prompts you to install them. Under **<Start search with delay in days>**, you can specify the delay with which the installation should be started, at the earliest after 14 days and at the latest after 60 days.

To deactivate this function, under **Settings > Software update**, tick **<Automatic search for new software>**.

Note: A prerequisite for the automatic search for software updates is the use of a Windows PC that is connected to the Internet. It is also necessary that the system settings of your PC allow background downloads.

1.5.5. Label printer settings Installing the drivers for Brother printers

Up to Windows 10: Install the drivers first. You will find these on the USB stick supplied under *Useful information/Brother drivers/ up to Win10*. Select your model and start the application D_ SETUP.exe. Follow the installation instructions.

Windows 11: First install the driver. You will find this on the USB stick supplied under *Useful information/Brother driver/Win11*. Follow the installation instructions.

Alternatively, you can also find the latest drivers online in the [Brother Solution Centre](#).

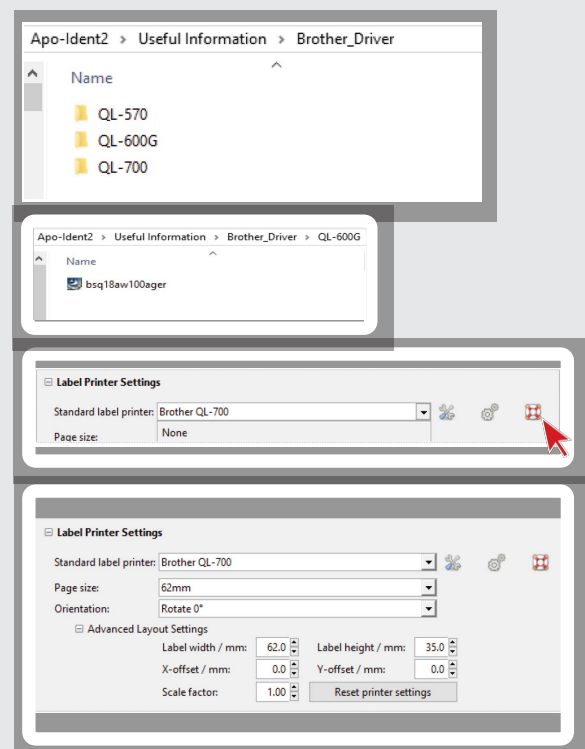
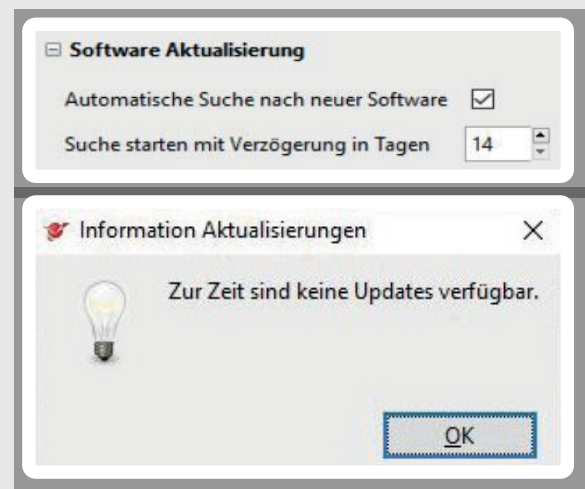
Setup in the Apo-Ident software

If you have successfully installed the drivers, your printer can now be selected from the **Standard label printer** list (Brother QL-700 or older models) under **Label printer settings**.

Settings for continuous paper DK-22205

Select the following settings:

- Page size: 62mm
- Orientation: Rotated by 0



Advanced layout settings

- Label width / mm: 62,0
- Label height / mm: 35,0
- X offset / mm: 0,0
- Y offset / mm: 0,0
- Scaling factor: 1,00

Now click on the left-hand **tool symbol** "Open printer settings". Change the following details in the dialogue window that opens:

- Paper size: 62mm
- Length: 35,0
- Belt feed: 3,0
- Orientation: Portrait
- Quality: Prioritise print quality 300 x 300 dpi

First click on **<Apply>** and then confirm with **<OK>**. You are now back in the Apo-Ident software settings.

Note: You can check your settings by starting a test print. To do this, click on the centre "Print test label" icon.

If your test print was successful, click **<Close>**. Your settings are applied and saved.

Settings for individual labels DK-11201

Select the following settings:

- Page size: 29 mm x 90 mm
- Orientation: Rotated by 90

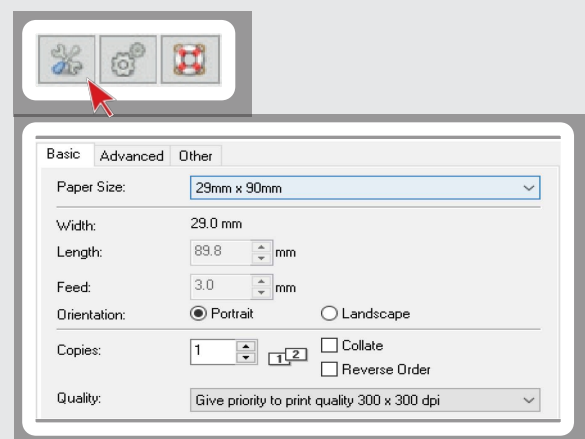
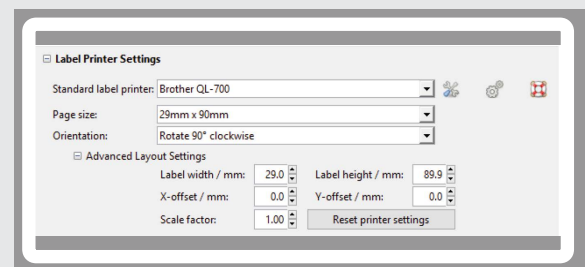
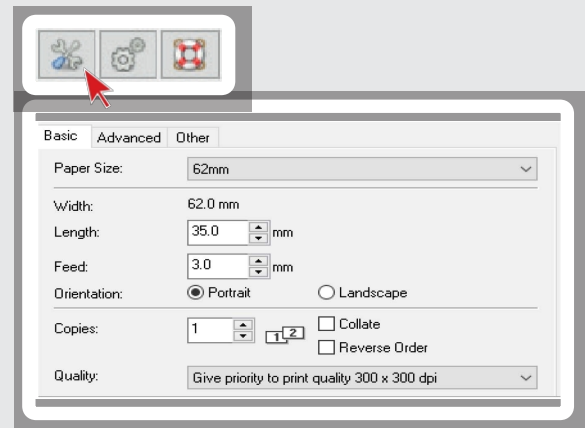
Advanced layout settings

- Label width / mm: 29,0
- Label height / mm: 89,9
- X offset / mm: 0,0
- Y offset / mm: 0,0
- Scaling factor: 1,00

Now click on the left-hand **tool symbol** "Open printer settings". Change the following details in the dialogue window that opens:

- Paper size: 29 mm x 90 mm
- Orientation: Portrait
- Quality: Prioritise print quality 300 x 300 dpi

First click on **<Apply>** and then confirm with **<OK>**. You are now back in the Apo-Ident software settings.



Note: You can check your settings by starting a test print. To do this, click on the centre icon
Print "Test label". If your test print was successful, click **Click <Close>**. Your settings are applied and saved.

Installing the driver software for DYMO printers

First install the driver. You can find this online in the [DYMO Support Centre](#). Please do not connect the printer to your PC until the driver software has been installed.

Settings for individual labels 99012

Select the following settings under **<Settings> <Label printer settings>**:

- Standard label printer: DYMO LabelWriter 450 or DYMO LabelWriter 550
- Page size: 99012 Large Address
- Orientation: Rotated by 0

Advanced layout settings

- Label width / mm: 35.8 mm
- Label height / mm: 88.4 mm
- X-offset / mm: 0 mm
- Y-offset / mm: 0 mm
- Scaling factor: 2,20

Now click on the "Open printer settings" **tool icon**. Change the following settings in the dialogue window that opens:

- Orientation: Landscape format
- Page sequence: From front to back

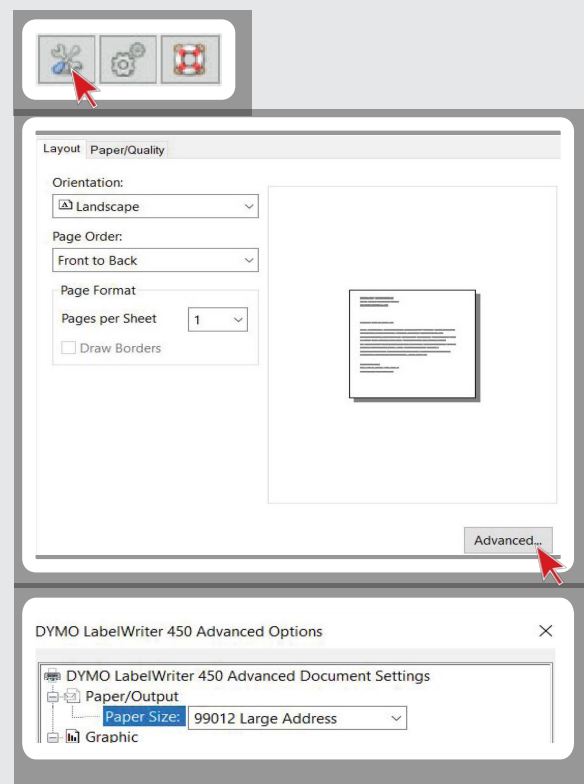
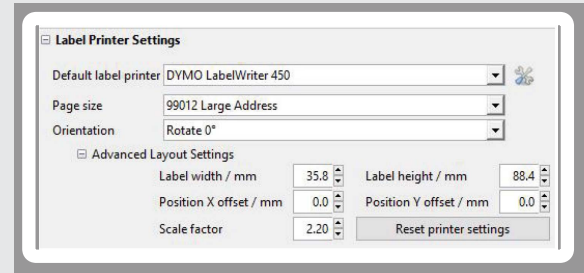
Make the following settings via the **<Advanced>** tab:

- Paper size: 99012 Large Address

Click on **<Apply>** and confirm with **<OK>**. You are now back in the Apo-Ident software settings.

Note: You can check your settings by starting a test print. To do this, click on the centre icon
Print "Test label". If your test print was successful, click **<Close>**. Your settings are applied and saved.

Note: These instructions only apply to the DYMO LabelWriter 450/550 label printer with 99012 labels. The label settings may differ for other DYMO models (e.g. Turbo, Twin Turbo etc.).



2. Carrying out the measurement

Under **Substance**, enter the starting substance to be tested in the search field. The search field recognises both German and Latin substance names, as well as synonyms if they are stored in the database.

Note: The software displays suggestions as soon as you enter the first few letters. Select the desired substance from the suggestions.

Green dot: The substance can be clearly identified if there is a green dot in front of the name. After entering the substance, the search field turns green. → **Section 2.1 / 2.2.**

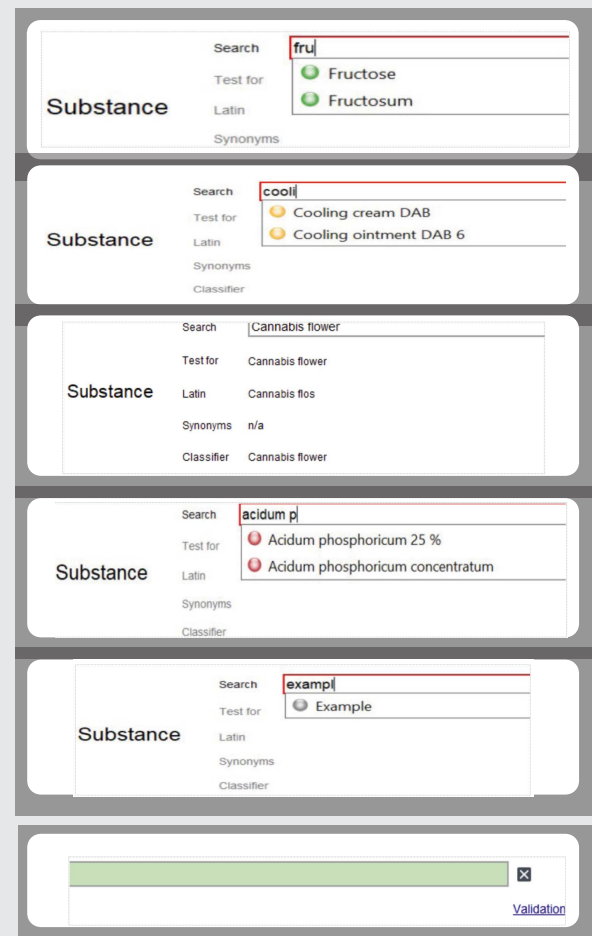
Yellow dot: For substances with a yellow dot in front of the name, only an ambiguous test result can be achieved. This means that the identity is limited to a few possibilities. After entering the substance, the search field turns yellow. → **Section 2.3.**

White dot: The THC/CBD content determination of cannabis flowers is labelled with a white dot. Only one content determination can be carried out for this substance with Apo-Ident. After entering the substance, the search field turns white → **Section 2.4.**

Red dot: The substance cannot be identified with Apo-Ident. However, these substances are predefined in order to document the results of other tests in the test protocol. After entering the substance, the search field turns red. → **Section 2.5.**

Grey dot: In substance management, you can create substances yourself in order to create a test protocol for user-defined substances and document the results of other tests. These substances cannot be tested with Apo-Ident. After entering the substance, the search field turns grey. → **Section 4.1.**

Note: Use the cross behind the input line to delete your all inputs.



The screenshot displays the Apo-Ident software interface with five search results for the 'Substance' field. Each result shows the search term, test for, Latin name, synonyms, and classifier.

- Search:** fru
Test for: Fructose (Green dot)
Latin: Fructosum (Green dot)
Synonyms:
- Search:** cool
Test for: Cooling cream DAB (Yellow dot), Cooling ointment DAB 6 (Yellow dot)
Latin:
Synonyms:
Classifier:
- Search:** Cannabis flower
Test for: Cannabis flower
Latin: Cannabis flos
Synonyms: n/a
Classifier: Cannabis flower
- Search:** acidum p
Test for: Acidum phosphoricum 25 % (Red dot), Acidum phosphoricum concentratum (Red dot)
Latin:
Synonyms:
Classifier:
- Search:** exampl
Test for: Example (Grey dot)
Latin:
Synonyms:
Classifier:

At the bottom, there is a green bar with a cross icon and a 'Validation' link.

2.1. Solid medicinal substances, solid BtM medicinal substances and cannabis flowers that can be clearly identified with Apo-Ident

Start the measurement

First place your **sample vial with the substance** and the **adapter ring** on the measuring point. Start the measurement process by clicking on the blue button next to **Measurement** or by pressing the measurement button (lights up green) directly on the top of the device.

Excursus "Correct filling of the sample vials (solid substance)":

Fill about 4 mm of the substance to be tested into the sample vial. Make sure that the bottom of the sample vial is evenly covered. The measuring plunger is not used for solid substances.

Excursus "Correct filling of the sample jars (cannabis flower)":

Place the cannabis flower to be tested in the sample jar with the stem facing upwards so that the flower covers most of the bottom of the jar. The more surface area is covered, the more accurate the measurement results will be.

Note: All solids (except cannabis flowers) can also be identified with a smaller amount of substance. The corresponding procedure can be found in **section 2.1.1**.

Referencing

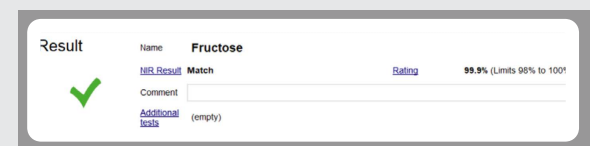
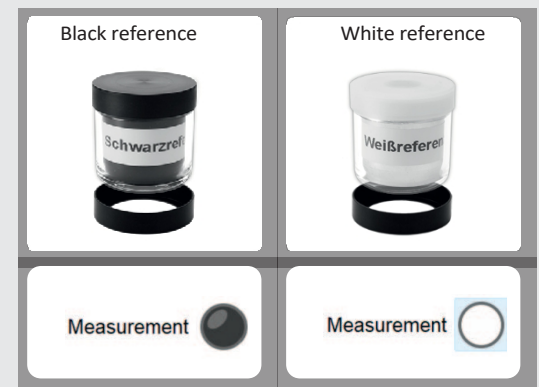
After the first substance measurement, you will be prompted to set up and measure the reference standards. Follow the instructions in the software and first place the black reference and then the white reference on the measuring point. Start the reference measurements by clicking on the black or white button next to **Measurement** or by pressing the measurement button (lights up green) directly on the top of the device.

Note: Please always use the black adapter ring. The measurement of the references is requested again by the software after approx. 60 minutes.

Output of the result

After a few seconds, the device will show you whether the substance has been identified.

Note: If the result is negative, please display the further information on non-identification. Check or repeat your measurement procedure accordingly.



Measurement data

After successful measurement, fill in all mandatory fields (outlined in red) next to **Sample** and under **Pharmacy > Tester**.

If required, the fields **PZN**, **purchase quantity**, **supplier**, **utilisation period**, **correction factor**, **delivery date** and **additional check** can be filled in.

Note: If you fill in the **Expiry date** field, the software calculates this from the day of the test and displays it as **Usable until** on both the test report and the test label. If the **expiry date** is before the **use-by date**, the **expiry date** is automatically displayed on the test report or the test label.

Creating the protocol

After a successful measurement, you can save the measurement process, display the test report as a PDF file or print it.

Note: Regardless of which of the functions you select, the measurement process is always saved. You can also print out your test label on your label printer.

2.1.1. Measurement with the sample insert for small substance quantities

All substances can be identified in the classes **Solid pharmaceuticals** and **Solid BtM pharmaceuticals**, even with a small amount of substance. To do this, you need the **sample insert** and the corresponding **white reference for sample insert**, which is required for referencing.

After selecting the substance, the **Measure with sample insert** checkbox appears on the right-hand side. Tick this box if you are using the sample insert.

First place your **sample vial with sample insert** and the **substance** in the **adapter ring** on the measuring point. Start the measurement process by clicking on the blue-black button next to **Measurement** or by pressing the measurement button (lights up green) directly on the top of the device.

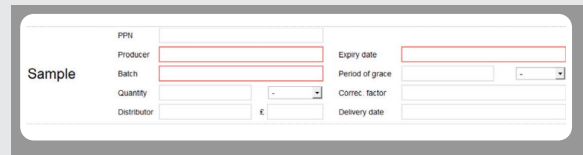
Excursus "Correct filling of the sample vials with the sample insert": The sample should be filled into the sample insert to a height of approx. 4 mm.

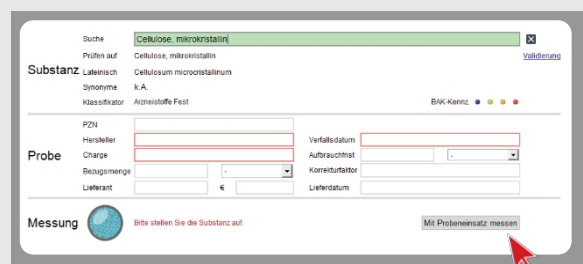
Referencing

After the first substance measurement, you will be prompted to set up and measure the references. Please use the black reference and the **white reference for sample use**, as otherwise non-identification may occur.

Note: The measurement of the references is cancelled after approx. 60 min. by the Software automatically requested again.

After a few seconds, the device will show you whether the substance has been identified. Then proceed as usual.






2.2 Semi-solid/liquid medicinal products that can be clearly identified with Apo-Ident

Stamp plate measurement

Start with the plunger measurement. Place the clean **measuring stamp** with the feet facing downwards in a clean, **empty sample glass**. Together with the **adapter ring**, place the glass with the measuring stamp on the measuring point of the Apo-Ident. Start the **stamp cell measurement** by clicking on the grey button or by pressing the button directly on the device.

Important: Both the stamp pellet measurement and the measurement of the liquid/semi-solid substance must be carried out with the same measuring stamp and sample glass. Otherwise, non-identification may occur.

Note: After a successful stamp cell measurement, a time window of 5 minutes is provided for starting the substance measurement. If the measurement is not completed within this period, the stamp cell measurement must be repeated.

Referencing

After the stamp cell measurement, you will be prompted to set up and measure the reference standards.

Please note the information on referencing under

Section 2.1.

Start the measurement

Place your **sample vial with the substance**, the **measuring plunger** and the **adapter ring** on the measuring point. Start the measurement process by clicking on the blue button next to **Measurement** or by pressing the measurement button (lights up green) directly on the top of the device.



Measurement



Place the transfectance insert feet facing down in an empty sample container and use them for the next measurement too

Excursus "Correct filling of the sample vials (semi-solid substance)": Once you have completed the stampelle measurement, remove the measuring stamp from the sample vial and hold it in your hand with the stamp feet facing upwards. Using a narrow spatula, remove an approximately hazelnut-sized amount of the previously homogenised substance and spread it on one of the straight edges of the measuring plunger. Place the empty sample vial over it and spread the substance over the entire surface. Finally, press the plunger into the substance until all three plunger feet visibly touch the bottom of the glass. Make sure that there are no air bubbles under the measuring plunger.

Excursus "Correct filling of the sample vials (liquid substance)": Once the stamp cell measurement has been completed, remove the measuring stamp from the sample vial. Pour a little homogenised liquid into the glass so that the bottom is completely covered. Place the measuring plunger with the plunger feet facing downwards in the sample glass. Some of the substance should rise visibly between the sample glass and the measuring plunger. Lift the glass upright and check that there are no air bubbles under the measuring plunger.

Output of the result

After a few seconds, the device will show you whether the substance has been identified.

Note: If the result is negative, please display the additional information on non-identification. Check or repeat your measurement procedure accordingly.

Measurement data

After successful measurement, fill in all mandatory fields (outlined in red) next to **Sample** and under **Pharmacy> Tester**.

If required, the fields **PZN**, **purchase quantity**, **supplier**, **utilisation period**, **correction factor**, **delivery date** and **additional check** can be filled in.

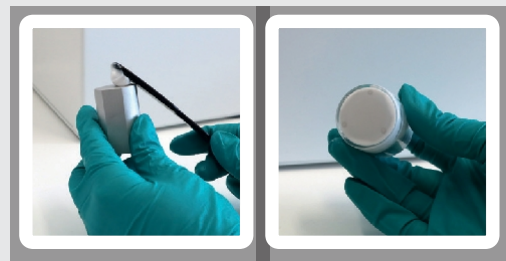
Note: If you fill in the **Expiry date** field, the software calculates this from the day of the test and displays it as **Usable until** on both the test report and the test label. If the **expiry date** is before the **use-by date**, the **expiry date** is automatically displayed on the test report or the test label.

Please note that only after filling in all mandatory fields the protocol can be created.

Creating the protocol

You can now save the measurement process, display the test report as a PDF file or print it.

Note: Regardless of which of the functions you select, the measurement process is always saved. You can also print out your test label on your label printer.




Result	Name	Sodium citrate	Match	Valuation	100.0% (Limits 98% to 100%)
✓	NIR Result				
	Comment				
	Additional tests				

Sample	PZN	Producer	Batch	Quantity	Supplier	Expiry date	Period of grace	Correc. factor	Delivery date

Protocol	Save	PDF	Print	Label Printer	Test number

2.3 Special features of substances with ambiguous test results

Important: A **supplementary check** is required for clear identification. Possible suggestions for a supplementary check can be found under **Help**. Please note, however, that these are only suggestions. The pharmacist is responsible for assessing which additional tests need to be carried out to ensure adequate safety.

To the right of the substance to be tested, click on the Warning sign  to obtain further information.

Click on **<View as PDF>** if you would like to print this information.

Start the measurement

Proceed as usual with your measurement (see **section 2.1. or 2.2.**)

After a successful measurement, complete all mandatory fields (outlined in red) next to **Sample** and under **Pharmacy> Tester**. The fields **PZN**, **reference quantity**, **supplier**, **utilisation period**, **correction factor** and **delivery date** can be completed if required. Carry out an additional check and document it. Possible suggestions for a supplementary check can be found under **Suggestion** or under **Additional check**. The supplementary check can also be documented in the software, see below.

Excursus "Settings for additional tests": Supplementary testing for substances that cannot be clearly identified is preset as a mandatory field. You can change this setting at any time. To do this, go to **<Settings>**, select **<Settings for protocol>** and remove the tick next to **"Additional test as mandatory field"**. If the protocol is managed by the Dr Lennartz laboratory programme, the "Additional test" field is not a mandatory field.

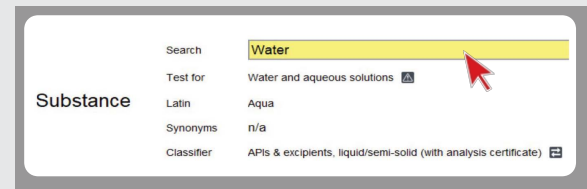
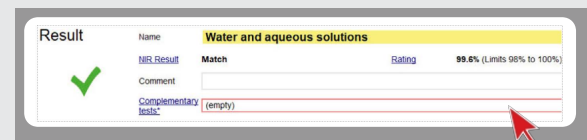
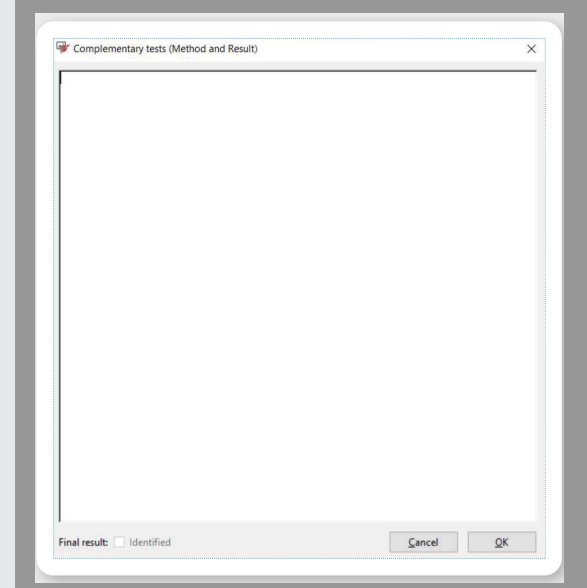
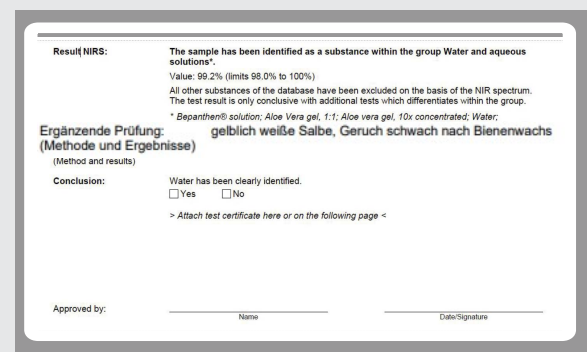
Documentation of the additional check via the software

The supplementary test and the test result can be entered in the software via **Supplementary test**.

If the result of the supplementary test is already available at the time of the measurement, this can be documented by clicking on the **<Corresponds>** checkbox at the bottom of the dialogue box. Click **<Close>** to accept your entries. The text entry and the final result then appear directly on the test report.

Handwritten entry of the result on the printed protocol

If the supplementary test is carried out at a later date, the method and final result of the test are subsequently noted by hand on the printed test report. The **<Corresponds>** checkbox is **not** ticked in the software.

2.4 Determination of the content of cannabis flowers

Start the measurement

First place your **sample glass with the cannabis flower** and the **adapter ring** on the measuring point. Start the measurement process by clicking on the cannabis button next to **Measurement** or by pressing the measurement button (lights up green) directly on the top of the device.

Excursus "Correct filling of the sample jars (cannabis flower)":

Place the cannabis flower to be tested in the sample jar with the stem facing upwards so that the flower covers most of the bottom of the jar. The more surface area is covered, the more accurate the measurement results will be.

The **"Documentation (methods and results)"** window now appears.

"The Quantifier module enables the determination of the THC and CBD content by means of NIR spectroscopy using quantitative methods based on a mathematical-statistical (prediction) model. It is not an identification of THC and CBD in the sense of thin-layer chromatography".

In the following text field, enter the tests you have carried out in advance and the respective result. You can display help on macroscopy and microscopy under [Suggestion](#). After you have entered the documentation, the box "Documentation: performed" can be clicked. Click OK to close the window and start the measurement.

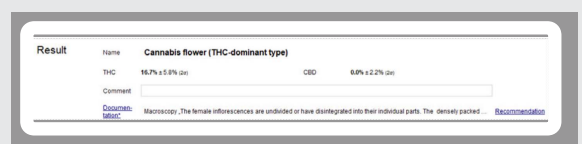
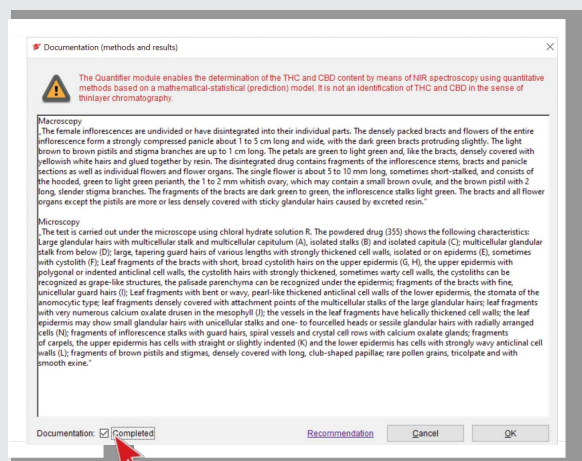
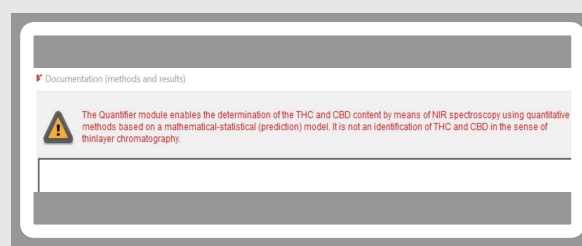
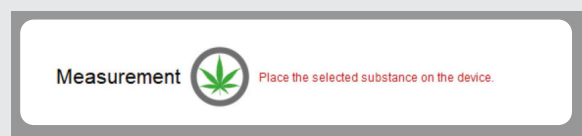
Referencing

After the first measurement, you will be prompted to set up and measure the reference standards. Follow the software instructions and first place the black reference and then the white reference on the measuring point. Start the reference measurements by clicking on the black or white button next to **Measurement** or by pressing the measurement button (lights up green) directly on the top of the device.

Note: Please always use the black adapter ring. The measurement of the references is requested again by the software after approx. 60 minutes.

Output of the result

After a few seconds, the THC and CBD content of the cannabis flower is displayed. In addition, it is shown whether it is a THC-dominant flower, a CBD-dominant flower, a flower with a balanced content or whether it is an undefined result if the result of the measurement cannot be categorised into a product group.



Measurement data

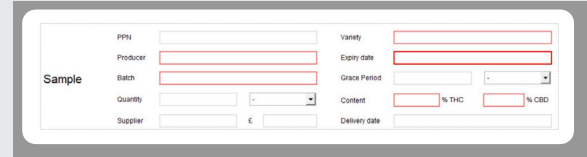
After the measurement, complete all mandatory fields (outlined in red) under **Sample** and under **Pharmacy > Tester**. If required, you can fill in the fields **PZN**, **quantity purchased**, **supplier**, **use-by date**, **delivery date** and **comment**.

Note: If you fill in the *Expiry date* field, the software calculates this from the day of the test and displays it as *Usable until* on both the test report and the test label. If the *expiry date* is before the *use-by date*, the *expiry date* is automatically displayed on the test report or the test label.

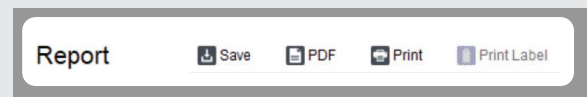
Creating the protocol

You can now save the measurement process, display the test report as a PDF file or print it.

Note: *Regardless of which of the functions you select, the measurement process is always saved. You can also print out your test label on your label printer.*



The screenshot shows a form with two main sections: 'Sample' and 'Pharmacy > Tester'. The 'Sample' section includes fields for PZN, Producer, Batch, Quantity, and Supplier. The 'Pharmacy > Tester' section includes fields for Variety, Expiry date, Grace Period, Content (% THC, % CBD), and Delivery date. Red outlines highlight the mandatory fields: PZN, Producer, Batch, Quantity, Supplier, Variety, Expiry date, and Content.



The screenshot shows a bar with the word 'Report' on the left and four action buttons on the right: 'Save' (with a download icon), 'PDF' (with a document icon), 'Print' (with a printer icon), and 'Print Label' (with a label icon).

2.5 Special features of substances that cannot be tested with Apo-Ident

Not measurable: Substances that cannot be tested with Apo-Ident, e.g. because they do not have a sufficient signature in the NIR range, are marked immediately after (partial) entry of the name (there is a red dot in front of the name, after entry the search field turns red, a message window appears).

A different test method is required to identify this substance. However, a protocol can be created via the Apo-Ident software without a measurement. To do this, click **<OK>** and complete the mandatory information on the substance.

Enter the identity check via the software

The method of identity verification and the verification result can be entered into the software via [Identity verification](#).

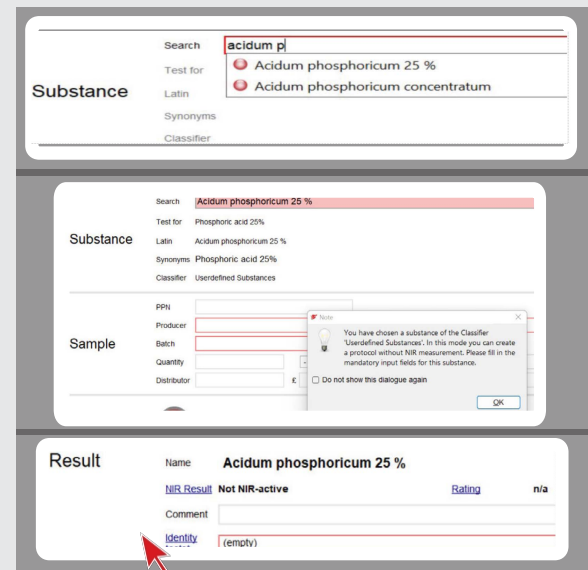
If the result of the identity check is already available at the time the report is created, this can be documented by clicking on the **<Corresponds>** checkbox at the bottom of the dialogue box. Click **<Close>** to accept your entries.

The text input and the final result then appear directly on the protocol.

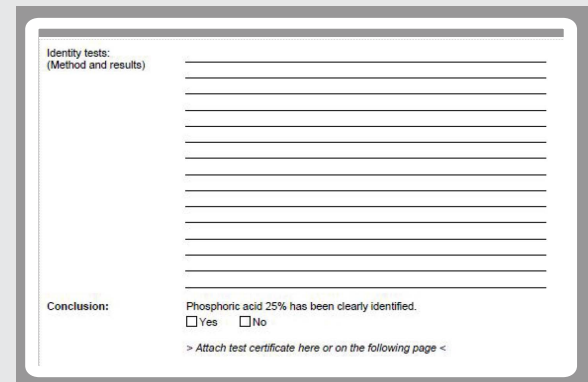
Handwritten entry of the result on the printed Protocol

If the identity check is carried out at a later date, the method and the final result of the check are subsequently noted on the printed report. The **<Corresponds>** checkbox is not ticked in the software.

Excursus "Identity check settings": The identity check for non-measurable substances is preset as a mandatory field. You can change this setting at any time. To do this, go to **<Settings>**, select **<Settings for the protocol>** and uncheck the box next to **"Additional check as mandatory field"**.



The screenshot shows two windows from the Apo-Ident software. The top window is the 'Substance' search screen. The search field contains 'acidum p', and the results list 'Acidum phosphoricum 25 %' and 'Acidum phosphoricum concentratum'. The bottom window is the 'Sample' entry screen. It has fields for PPH, Producer, Batch, Quantity, and Distributor. A red dot is visible next to the 'Batch' field. A message box is overlaid on the 'Sample' window, stating: 'You have chosen a substance of the Classifier "Userdefined Substances". In this mode you can create a protocol without NIR measurement. Please fill in the mandatory input fields for this substance.' with an 'OK' button.



The screenshot shows a printed 'Protocol' form. The 'Identity tests: (Method and results)' section has several horizontal lines for handwritten entry. Below this, the 'Conclusion:' section shows 'Phosphoric acid 25% has been clearly identified.' with two checkboxes: 'Yes' (checked) and 'No'. At the bottom, there is a link: '> Attach test certificate here or on the following page <'. The 'Corresponds' checkbox is not ticked.

3. Cleaning/utilisation of sample tubes, measuring stamps and sample insert

Sample jars

- Roughly pre-clean the sample tubes with a paper towel after the measurement
- After measuring ointment bases, pre-cleaning of the sample tubes with isopropyl alcohol 70 % is recommended
- Clean with washing-up liquid, warm water and a soft cloth
- Then rinse the sample vials with purified water and wipe dry with a lint-free cloth
- Before using the sample vials, disinfect them with 70% isopropyl alcohol and wipe them with a disposable cloth.
Dry

Before measuring, check that the glass base in particular is clean and free of grease. No water stains must be visible.

If you decide to use the sample in the formulation, please check whether the microbiological purity of the sample glass and the measuring stamp is guaranteed.

Transflexion application

Scratches between the stamp feet or strong discolouration can affect identification. Therefore, please handle the measuring stamp with care.

- Never use pot scrapers, spatulas or other tools to clean the stamp
- No cleaning in the dishwasher!
- Roughly wipe the measuring stamp with a paper towel after the measurement
- Clean with washing-up liquid, warm water and a soft cloth
- Then rinse the stamp with clean water and wipe dry with a lint-free cloth
- Before using the measuring plunger, disinfect it with 70% isopropyl alcohol and wipe it with a disposable cloth.
Dry

Sample insert for measuring small amounts of substance

- After the measurement, remove any residue from the sample insert by tapping lightly on the sample glass.
Remove powder residues
- Clean with washing-up liquid, warm water and a soft cloth
- Then rinse the sample insert with clean water and wipe dry with a lint-free cloth
- Before using the sample insert, clean it with 70% isopropyl alcohol and allow to dry

Measuring point / sample window

Please ensure that the measuring point (sample window) of the Apo-Ident device is kept clean. We recommend using a cloth soaked in 70% isopropyl alcohol for cleaning.

4. Additional functions

4.1. Asset management

Substance management allows you to manage or create additional substances that cannot be tested using NIR, but for which you can create reports.

You will find the **<substances>** at the top of the menu bar.

The **Additional substances** window opens. Substance management **must** be customised individually for each configuration profile.

Predefined additional substances

Substances that cannot be tested with Apo-Ident but are often searched for are predefined by default. A protocol without NIR measurement can be created with all selected substances using the Apo-Ident software (see **section 2.5.**).

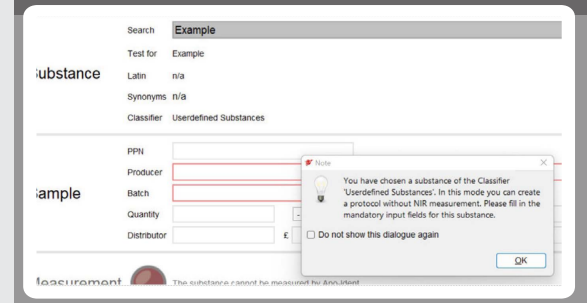
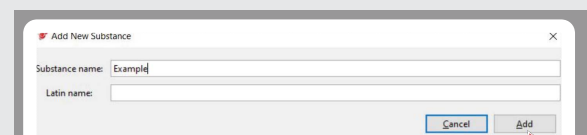
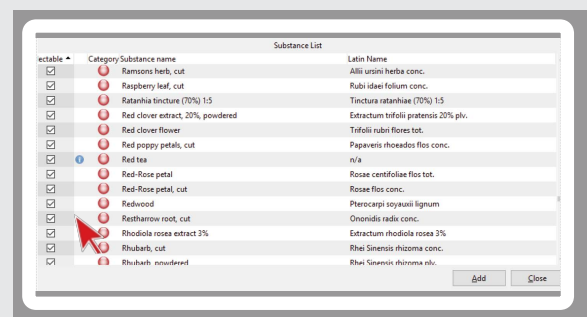
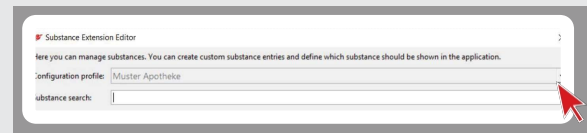
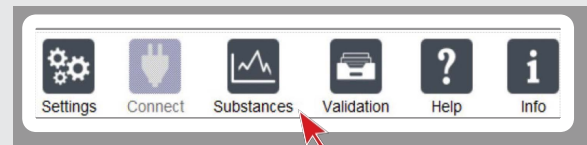
If a substance is not required for log creation, it can be deselected by removing the selected tick. As soon as the substance is required again, the tick can be set again.

The blue information circle next to a tick shows alternative German and alternative Latin substance names.

Self-defined additional substances

New substances for which you want to create test protocols can be created under **<Add>**. The substance name must be entered, the Latin name is optional. After clicking **<Add>** again, the newly created substance appears with a grey dot in the substance list. **<Close>** the window.

A protocol can now also be created for the self-defined substance without measurement (proceed as described in **section 2.5.**).



4.2. Percentage of conformity + target value (only for identity check of recipe starting materials)

The agreement of the sample spectrum with the stored reference spectrum is displayed as a percentage. The permissible range of the evaluation (target value) is shown behind this. If the sample spectrum is outside the permissible range, the substance is shown as not identified with **"Does not match"**.

By clicking on **NIR result** you can display the measured Display spectrum.

4.3. Display of the difference line between the reference and Sample spectrum

If required, you can display the difference between the sample and reference spectrum in the graph of the test report (only possible if the spectrum tested positive). Please note that the right-hand scale is used for the difference line in order to make the differences clearly visible.

To do this, go to **<Settings>**, select **<Report settings>** and tick the box next to **"Show difference in back projections"**.

4.4. Search function (query) by substance, expiry date or other criteria

You can use this function to repeat protocols or labels. display and print.

To do this, click on **Query** in the menu bar. This opens the Archive query.

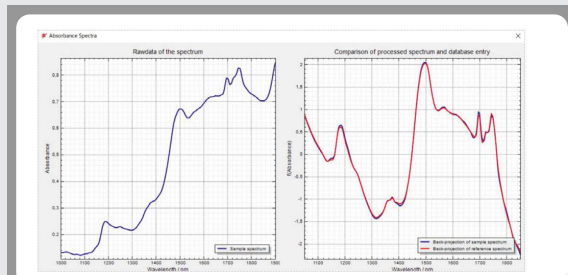
If necessary, set the configuration profile for the search query at the top. Under the **Substance** tab, enter the name of the substance (or the test number or PZN) whose test protocols you want to search for. Click on **<Execute>**. All test protocols containing the specified search text are displayed.

To search for the expiry date, click on the tab **Expiry date** and enter the corresponding data.

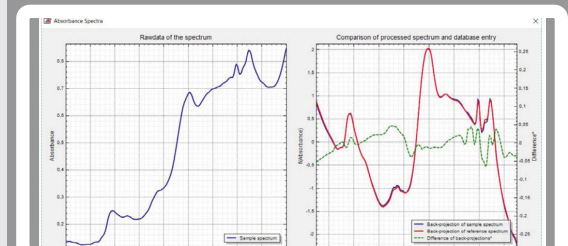
After executing the query, you can select the relevant substance in the results window and display information on the measurement or the protocol.

Under the **Advanced** tab, you can also search for the tester, manufacturer, supplier, a batch number or a comment.

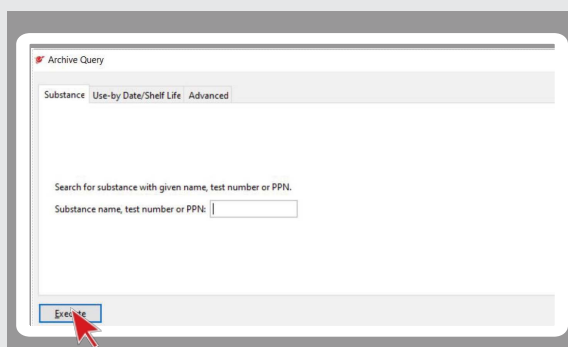
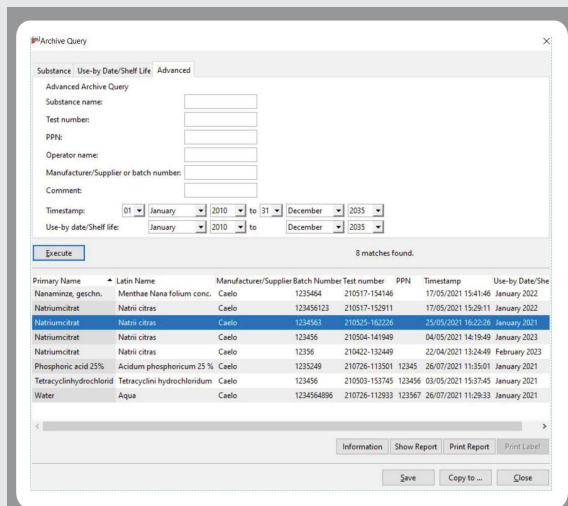
In the **Time stamp** query, you can, for example, view all measurements from 01 January 2010.

Graphic without difference display



Graphic with difference display

Primary Name	Latin Name	Manufacturer/Supplier	Batch Number	Test number	PPN	Timestamp	Use-by Date/She
Nanaminz, geschn.	Menthae Nana folium conc.	Ceilo	1235464	210517-154146		17/05/2021 15:41:46	January 2022
Natriumcitrat	Natrii citras	Ceilo	123456123	210517-152911		17/05/2021 15:29:11	January 2022
Natriumcitrat	Natrii citras	Ceilo	1234561	210517-152911		25/05/2021 15:29:11	January 2022
Natriumcitrat	Natrii citras	Ceilo	1234566	210504-141940		04/05/2021 14:19:40	January 2023
Natriumcitrat	Natrii citras	Ceilo	12356	210423-132449		23/04/2021 13:24:49	February 2023
Phosphoric acid 25%	Acidum phosphoricum 25 %	Ceilo	1235348	210726-113501	12345	26/07/2021 11:35:01	January 2021
Tetracyclinehydrochlorid	Tetracyclini hydrochloridum	Ceilo	123456	210503-153745	123456	03/05/2021 15:37:45	January 2021
Water	Aqua	Ceilo	1234564896	210726-112933	123567	26/07/2021 11:29:33	January 2021

Export of query results in CSV format

The results of the query can be displayed by clicking on **<Save>** to save the list in CSV format. Then open this in a CSV-capable programme (e.g. MS Excel) to print or further use the list.

Copy files to individual storage locations

(e.g. on a USB stick)

If you would like to copy the selected files to an individual location, please click on the **<Copy to...>** button and select the desired storage location. All data corresponding to the search criteria will be copied.

4.5. Display of the validation documents

Click on **<Validation>** in the menu bar at the top. Now select the relevant validation document.

After entering the substance to be tested, you can also call up the validation document directly via the Apo-Ident interface. To do this, click on **Validation** in the **Substance** section on the far right.

The validation information for the database entry of tested substances is specified in the test protocol. You can change this default setting. To do this, go to **<Settings>**, select **<Report settings>** and remove the tick next to **"Print validation in report"**.

4.6. Data backup

To send your measurement logs to Apo-Ident customer service or to save them for the purpose of data backup, click **<Help>** in the menu bar at the top and select **<Data backup>**. You can now choose whether you want to perform a **<Backup>** or export data for our **<Customer service>**.

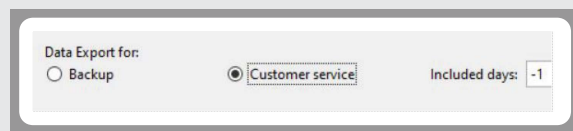
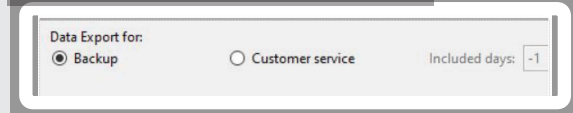
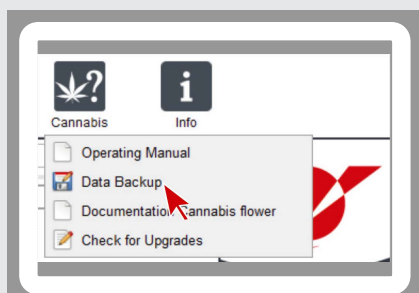
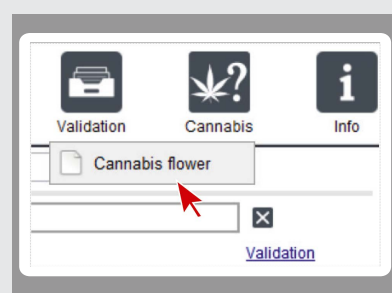
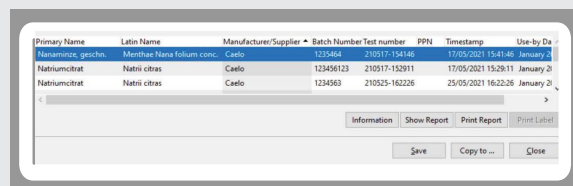
If you want to change computers, it is advisable to make a backup (export of the checks incl. log files, licence key, profile). The backup contains the settings, archive(s) and profile(s).

Click on **<Save>**. By default, the corresponding zip archive is saved on the desktop.

If you export the data for customer service, your spectra are saved in a compressed ZIP file. You can set how many measurement days you want to summarise and save as follows:

- -1 = all days
- 0 = only LogFiles
- 1 = 1 day
- 2 = 2 days
- etc.

Click on **<Save>**. By default, the corresponding zip archive is saved on the desktop. You can now send us the data by e-mail to kundenservice@apo-ident.de.



4.7. Integration of the Dr Lennartz laboratory programme in QuickStep Apo-Ident software

One-off preparation

If you document your starting material tests with the Dr. Lennartz laboratory programme for pharmacies, please make the following one-off settings to establish data exchange between the two programmes.

Settings in QuickStep Apo-Ident

Click **<Settings>** at the top of the menu bar and select the **Dr Lennartz laboratory programme** option under **Protocol management by**. Then click on the **<button with the pencil>** to the right. The data exchange settings open. The default settings are **Activate data exchange** and the **exchange directory** "C:\Winclip\Exchange\ Apo-Ident".

If you would like to define a different exchange folder, please select your desired directory with **<Browse>** and confirm this with **<Apply>**. A measurement report suitable for the Dr Lennartz laboratory programme is now created instead of an Apo-Ident test report.

Settings in the Dr. Lennartz laboratory programme

Start the Dr Lennartz laboratory programme. Click on **<Programme settings>** in the **<File>** menu bar. In the tab **Starting materials**, tick the box **<Enable NIR Apo Ident connection>** and select the same exchange folder that you have already specified in the QuickStep Apo Ident software. **<Save>** your entries.

You have now defined a shared exchange folder and can start with your NIR starting material inspection.

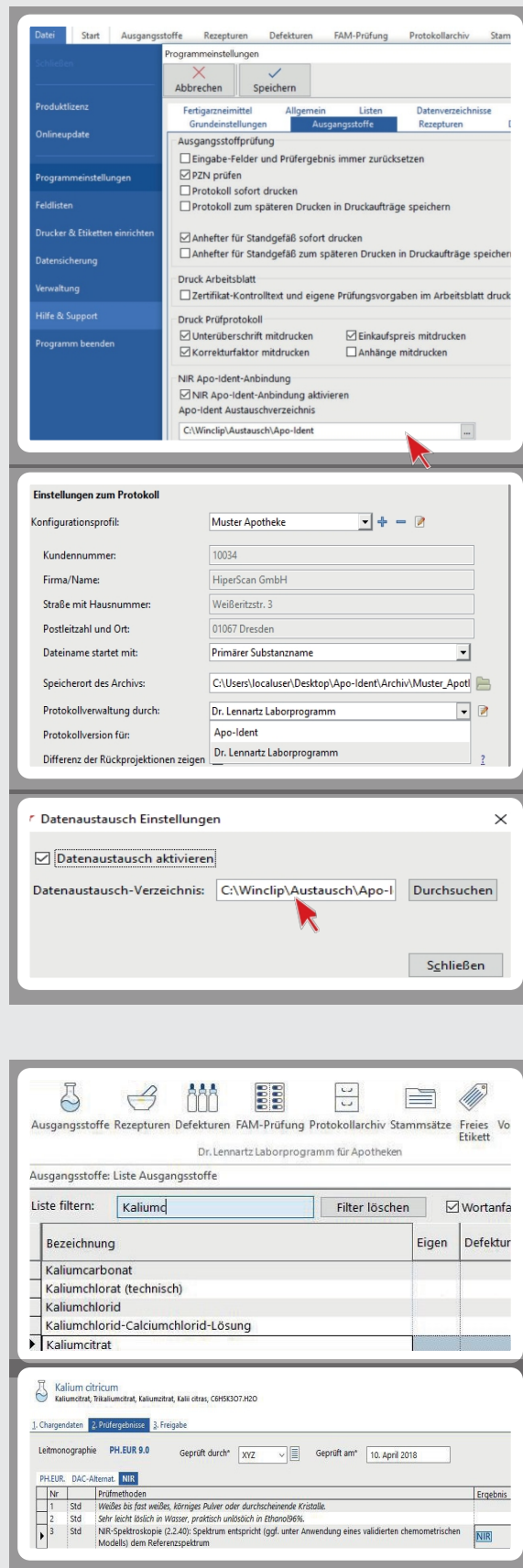
Note: *It is essential that you have defined the same exchange folder in both programmes so that the exchange can work. Our recommendation: copy the link path from the settings in the Dr Lennartz laboratory programme and paste the same link into the settings in QuickStep Apo-Ident.*

Operating the software

You start the documentation of the NIR starting material inspection **always** with the Dr Lennartz laboratory programme.

Under **Starting materials**, enter the substance to be tested and confirm the substance in the list with a double-click.

Enter all the necessary details in the **1. batch data** tab and then click on the arrow at the bottom right to go to **2. test results**. Under **Tested by**, enter your name abbreviation and select the **<NIR>** test method from the various tabs. Then click the **<blue NIR button>** in the Result column. A new window opens. Click on **<Transfer to Apo-Ident>** to transfer the data to Apo-Ident.



Additional functions



Now switch to the QuickStep Apo-Ident software. Once you have selected your **configuration profile**, click on "Select substance" on the right on the **<Dr. Lennartz symbol>**. This transfers all data from the laboratory programme directly to Apo-Ident. Carry out the measurement as usual and **<Save>** then save the created test report.

Now switch back to the Dr Lennartz laboratory programme. If the NIR button is highlighted in red, the measurement protocol is already stored. Continue with the documentation in the Dr Lennartz laboratory programme as usual.

Note: If the QuickStep Apo-Ident programme and the Dr. Lennartz laboratory programme are installed on different PCs, you must first complete your initial substance test with Apo-Ident. Copy the PDF test report in the Apo-Ident archive to a USB stick. Then connect the USB stick to the PC on which you are using the Dr. Lennartz laboratory programme. Now select the corresponding protocol from the USB stick in the Dr Lennartz laboratory programme under "Select NIR protocol" and add it by double-clicking. Confirm your selection with OK. The test protocol has now been added. Continue with the documentation in the Dr. Lennartz laboratory programme as usual.

4.8. Details on identification (ranking list)

(only for identity check of recipe starting materials)

Apo-Ident compares the measured spectrum with all samples stored in the reference database. A maximum of 20 results with the highest match can be displayed in the ranking list. To display the ranking list, please click on **Evaluation** in the results display for the measurement.

The view with the identification details opens. If you select the **<Show as PDF>** button, you will receive the displayed table in PDF format and can print and save it together with the log.

The reference sample with the **closest match to the prepared sample** is displayed in 1st place (rank 1). If the criteria for identifying the substance are met, it is displayed **in green**.

This is followed by the nearest reference samples, labelled in **red**. These are not directly taken into account when evaluating the measured sample spectrum. This means that samples ranked 2 or higher cannot lead to a "Corresponds" result because another sample is closer. For substances that are summarised in groups, please note that the name (classification) shown in the ranking list may differ from the substance name. The group name is then displayed (e.g. "Triglycerides").

The view is used for traceability and verification of the identification result by the user.

The list shows the determined test parameters of the measured sample spectrum in relation to the nearest 20 reference samples. An explanation of the individual terms can be found **in section 5**.



Nr.	Std.	Prüfmethoden	Ergebnis
1	Std.	Weißes bis fast weißes, körniges Pulver oder durchscheinende Kristalle.	
2	Std.	Sehr leicht löslich in Wasser, praktisch unlöslich in Ethanol 96%.	
3	Std.	NIR-Spektroskopie (2.2.40): Spektrum entspricht (ggf. unter Anwendung eines validierten chemometrischen Modells) dem Referenzspektrum.	

Result

Name: **Fructose**

NIR Result: Match

Comment: (empty)

Additional tests: (empty)

Rating: 99.86%

Ranking	Classification	Sample ID	Significance	Confidence	Correlation	Distance	Rating
1	Fructose	21281	0.9986	1.0000	1.0000	3.7	99.86%
2	NO_ID	NOID2535f	0.9752	0.9990	0.9421	16.9	0.00%
3	Calcium glycerophosphate	21234	0.9260	0.9975	0.9880	34.9	0.00%
4	Sodium hyaluronate	25495	0.9249	0.9962	0.9835	35.3	0.00%
5	Polymyxin B sulfate	21329	0.9134	0.9971	0.9711	39.9	0.00%
6	Riboflavin	20825	0.9128	0.9967	0.9687	40.2	0.00%
7	Colistin sulfate	20915	0.9076	0.9950	0.8833	42.4	0.00%
8	Polymyxin B sulfate	20853	0.9054	0.9961	0.9073	43.4	0.00%
9	Amphotericin B	20933	0.8949	0.9941	0.9601	48.5	0.00%
10	Bacitracin	20851	0.8827	0.9950	0.8940	55.3	0.00%

4.9. Help

Under the **<Help>** menu item, the software offers you various Assistance for safe handling of Apo-Ident.

Operating instructions > Here you will find the detailed operating instructions for the Apo-Ident analyser.

Service Centre Online Help > You will be linked to the Apo-Ident Service Centre page. Internet access is mandatory for this. Here you will find current instructions, substance lists and the latest software. You can also download information material and order forms as well as validation documentation and the open source code.

Data backup> see **section 4.6**.

Supplementary tests > If there is a yellow dot in front of the substance to be tested, the substance cannot be clearly identified with Apo-Ident. A supplementary test for unambiguous identification is mandatory (see **section 2.3**.)

Under **<Supplementary tests>** you will find possible suggestions for a supplementary test, sorted by substance group. Please note, however, that this is only a guide. The responsibility and decision lies with the pharmacist.

Subscribed substances > Here you will find an overview of the substances that can be measured with Apo-Ident.

Substance and batch maintenance> This list shows you the Substance and batch maintenance of the currently installed version.

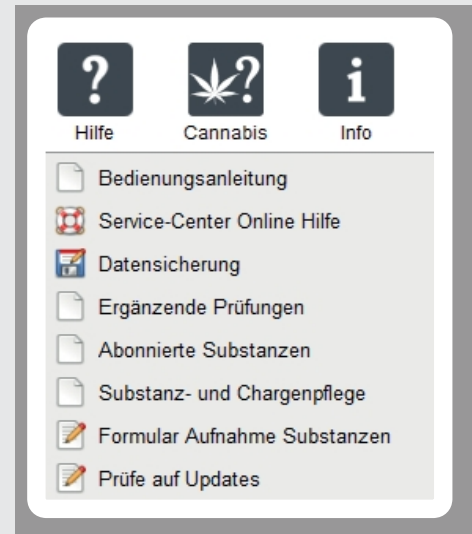
Substance intake form > You have the option of showing us your desired substance that cannot yet be tested with Apo-Ident. Please complete the document and send it to us. We will check whether the substance can be included.

Check for updates > Shows whether new software versions are available (provided your Apo-Ident is connected to the Internet and downloads are authorised).

Under the menu item **<Cannabis>** you will find the proposal for the Macroscopic and microscopic examination.

4.10. Info

Here you can obtain information about the installed versions, set up a Teamviewer session under **<Service Centre>** or display the **<Certificates>** for the currently installed software modules.



5. Explanation of terms

Designation	Explanation	Assessment
Rank	determined rank of agreement of the measurement to be evaluated with the reference samples stored in the database	
Classification	Subs that are clearly distinguishable from Apo-Ident tance or substance group; a substance group pe represents several substances that are not clearly separable from Apo-Ident, but are available for measurement (e.g. "tri-glycerides").	These classifications are yellow characterised (ambiguous result).
Sample ID	Identification number of the reference samples assigned by HiperScan GmbH, from whose spectra the Apo-Ident reference database was created. Detailed information on all reference samples can be found in the validation documentation.	
Significance	Measure for the distance of the measurement result 1), in relation to the mean value of the measurements of a sample or sample spectrum are to the closer to the stored classification	The higher the value (maximum the closer the measured reference sample spectrum is reference values.
Confidence	Outlier evaluation	The higher the value (maximum 1), the better the measured sample spectrum fits into the distribution of the stored reference values.
Correlation	Statistical measure for the similarity of the higher is the agreement between the reference spectra and the back projection of the mean value of the stored spectra. spectra to the back projection of the measured sample spectrum	The higher the value (maximum 1), the higher is the similarity of the reference back projections.
Distance	Distance measure between the mean value of the stored spectra of a reference sample and the measured Spectrum in principal component space (Mahalanobis distance)	The smaller the value, the closer the the sample spectrum of the deposited reference values.
Valuation	indicates the overall rating (with regard to the criteria mentioned above) of the measured the spectrum as displayed on the screen and protocol (or displayed would)	The higher the value (maximum 100 %), the closer the sample is to the stored reference values. the The defined minimum value for a identification is 98 %.
Specificity	The specificity of a classification is the true-negative rate. It describes the proportion of spectra correctly classified as non-identity during validation.	
Recognition rate	This is the true-positive rate. It denotes the proportion of the test results spectra correctly classified as identity.	

6. Technical data and Disposal

6.1. Technical data

Analysis methods	Near infrared spectroscopy
Spectral range	1000 - 1900 nm
Spectral resolution	10 nm
Stray light	< 0,2 %
Measuring time	< 15 s per scan
Detector	InGaAs single detector, uncooled
Wavelength accuracy	± 1 nm (in the entire temperature range)
Wavelength reproducibility	± 0.3 nm (in the entire temperature range)
Photometric reproducibility	± 0.15 % (average of 500 scans at 25 °C)
Photometric linearity (max/RMS)	< 2 % / < 1,5 %
Automatic recalibration/device check	Integrated wavelength and white standard
Light source	Tungsten-halogen burner
Probe/optical input	Diffuse reflection, measuring spot with 23 mm diameter (powder, scattering solids, with transfectance stamp liquids and pastes)
Dimensions	185 x 192 x 220 mm
Weight	2.95 kg
Interfaces	1 x USB type B slave
Interfaces aiLINK (optional)	<ul style="list-style-type: none"> • 2 x USB 2.0 type A host • 2 x USB 3.0 type A host • Wifi 2.4GHz IEEE 802.11ac • 1 x Gigabit Ethernet • 1 x HDMI2.0 type A up to 4k/30Hz
Operating temperature	15 - 35 °C
Storage temperature range	-20 to 60 °C (non-condensing)
Operating voltage Apo-Ident 2	12 VDC - 3.35 A - 45 W
Operating voltage external power supply	100 - 240 VAC/50-60 Hz/60 W

Software QuickStep Apo-Ident software for recording and visualizing spectra

- System requirements
- PC with Windows 10 or 11 operating system
 - min. 4 GB working memory
 - min. 1.6 GHz Pentium
 - 0.5 GB storage space



The appliance complies with the following EC directives

- EMC Directive 2014/30/EU
- Low Voltage Directive 2014/35/EU
- RoHS Directive 2011/65/EU
- EMV 2014/53/EU (RED)



6.2. Waste disposal



According to the European WEEE Directive, electrical and electronic devices may not be disposed of with household waste. Their components must be recycled or disposed of separately, as toxic and hazardous components can cause lasting damage to health and the environment if disposed of improperly.



According to the German Electrical and Electronic Equipment Act (ElektroG), you are obliged to dispose of electrical and electronic equipment properly at the end of its service life. If you have

HiperScan GmbH, as the manufacturer, will take the device back if it has not implemented a procedure during operation.

Please do not hesitate to contact us if you have any questions.



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HiperScan wishes you lots of fun with Apo-Ident!

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