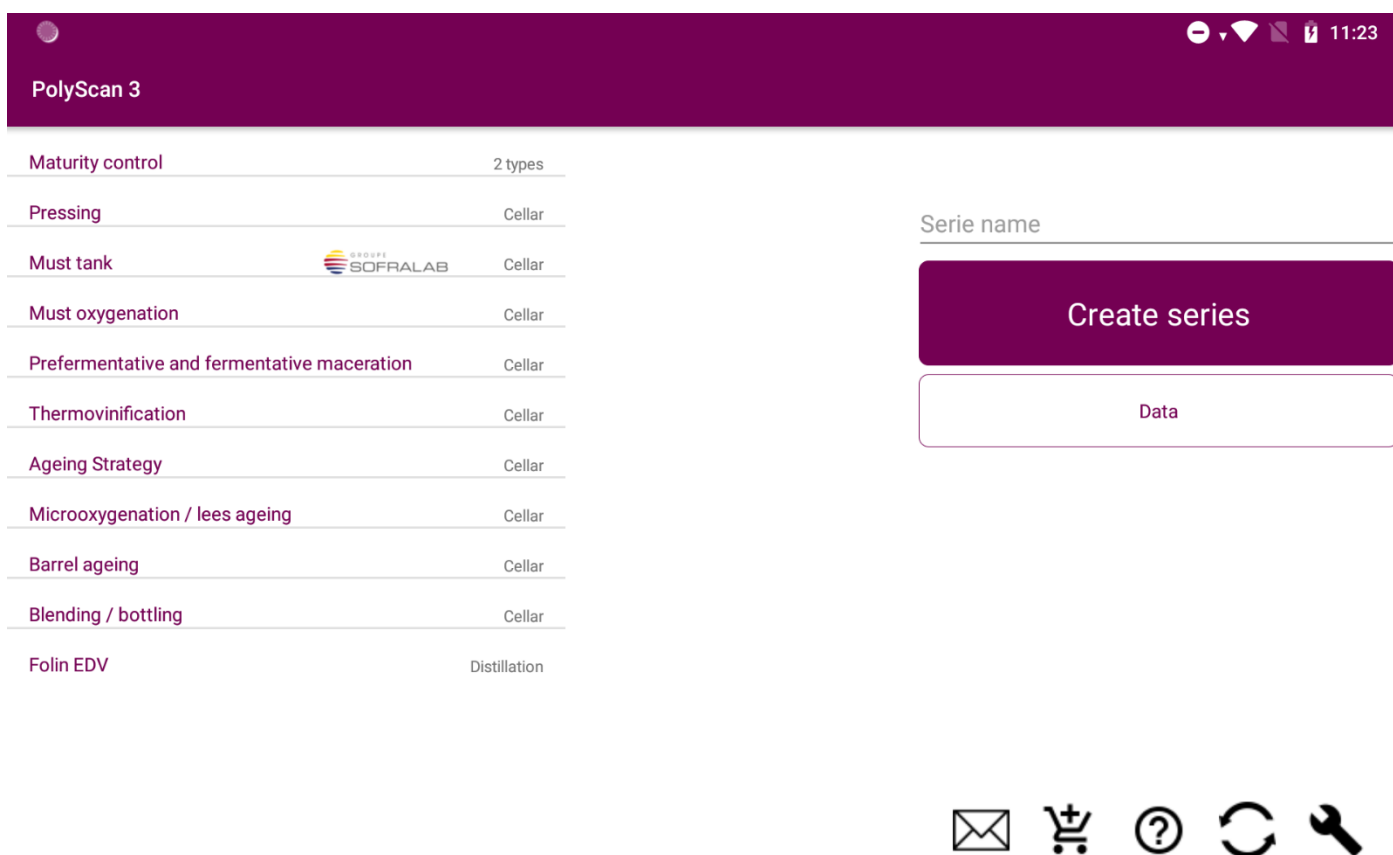


WQS Polyscan

WQS Color

User Guide Polyscan & Color





Version : V4 April 2024

Only the C200 versions of the Polyscan are concerned by this manual, for the P200 refer to version V2 June 2021

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1. Starting

Turn on the device by pressing the ON/OFF button on the side of the Polyscan.



Slide the locking screen up to unlock

The analyzer home screen is displayed automatically, otherwise click on the Polyscan logo.



After a series of measurements, to preserve the battery of the device, please turn off the analyzer.

2. Measurement

Precautions of use

- Do not sample juices that have been in contact with air for a long time (rapid oxidation => impacts the result).
- Do not compare juices or wines with low temperatures and high temperatures
- Do not compare sulfited and non-sulfited wines or musts

2.1. Measurement launch

DO NOT COLLECT AND DROP THE SAMPLE PRIOR to setting up the Polyscan

Take an electrode by the white part (without touching the gray part) to remove it from the box then, holding it on the blue part, insert it into the electrode connector as in the photo below.

PolyScan 3		11:25
Maturity control	2 types	Red
Pressing	Cellar	Rosé
Must tank	Cellar	White
Must oxygenation	Cellar	Sparkling
Prefermentative and fermentative maceration	Cellar	
Thermovinification	Cellar	
Ageing Strategy	Cellar	
Microoxygenation / lees ageing	Cellar	
Barrel ageing	Cellar	
Blending / bottling	Cellar	
Folin EDV	Distillation	

Variety

Series name

Create series

Data

① Choose a type of analysis (compulsory) – see chapter 3. **The types of analyzes corresponding to an unsubscribed pack appear in gray and are not accessible.**

② Indicate the sample color (compulsory) / **appears after choosing the analysis type**

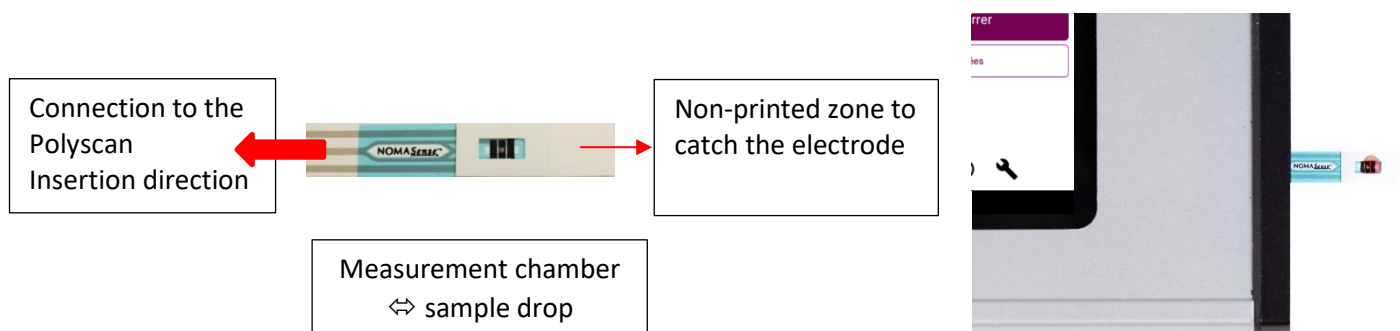
③ Indicate the grape variety, the series name and the sample name
If the grape variety is specified, the reference values will be adapted according to the grape variety and the type of measure chosen.

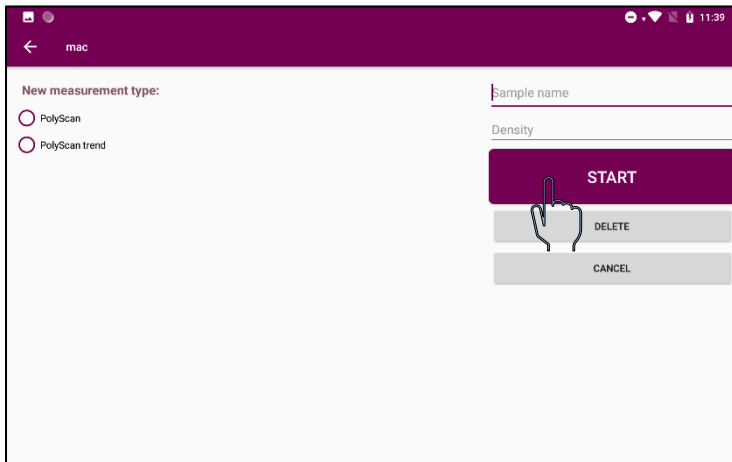
④ Press


Create series

⑤ Select the type of measurement: Polyscan (single measurement), evolution trend (sensitivity to oxidation). NB: in some menus only one type is available.

Information about the sample to be measured are optional. A time stamp of the measurement will identify it if they are not met. It is still strongly recommended to fill them in to facilitate the recognition of data. Take the sample and place a drop of juice or wine to be analyzed in the measurement chamber.



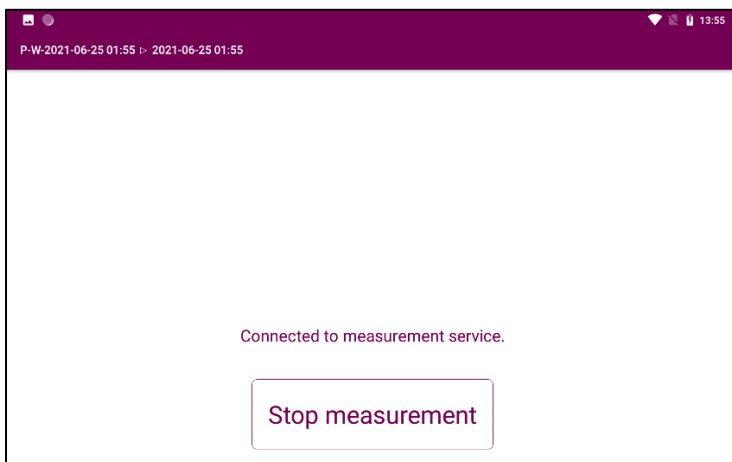


Once the settings have been made and the (new) electrode inserted. 

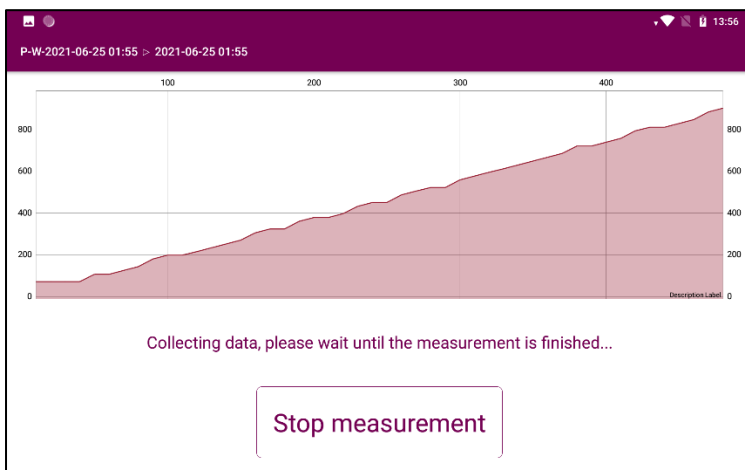
Take must from the tank.

Place a drop on the electrode, **taking care to completely cover the black rectangles and avoiding bubbles.**

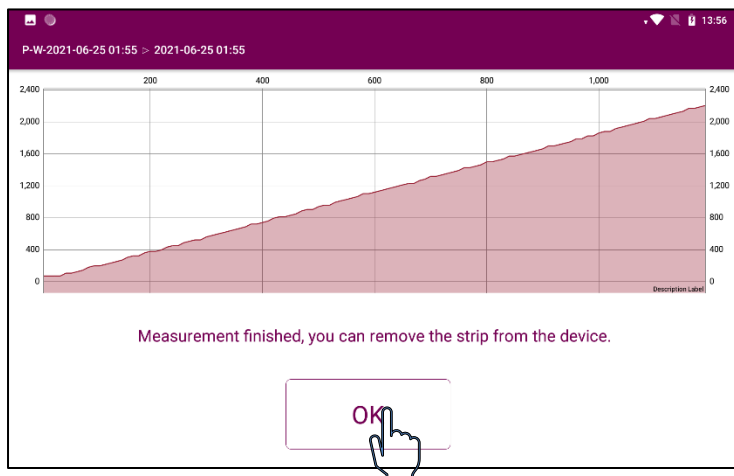
Then start the measurement by pressing Start.



The measurement starts by detecting the strips and calibrating the device.

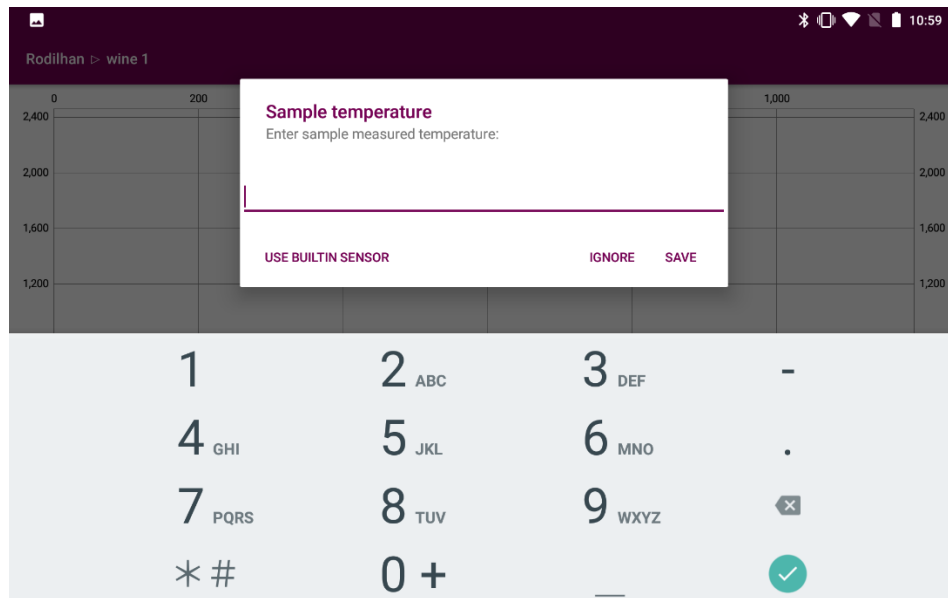


During the measurement the Intensity/Potential curve is plotted.



A the end of the measurement, remove the strip and press **OK**.

For certain types of analyzes (thermovinification, micro-oxygenation, etc.), at the end of measurement, before to switch to results page, a pop-up message allows saving temperature of the sample.



You can click on:

- Use built in sensor: for Polyscan with a temperature probe. Click to measure with the probe once it is plugged.
- Ignore: no temperature will be saved with measurement
- Save: to save temperature that was manually added.

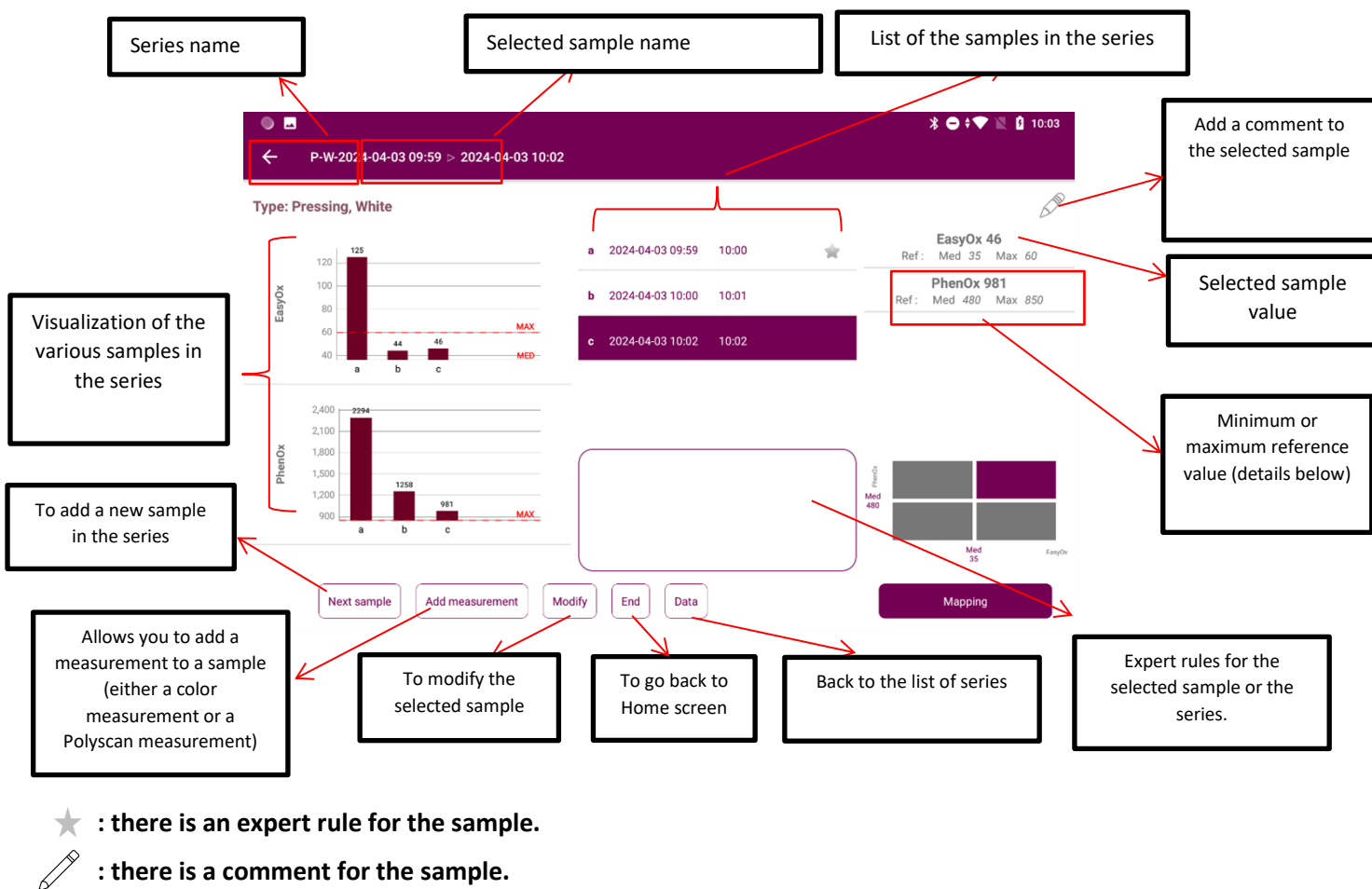
Analysis results appear in the results screen

You can then click on:

- Next** to add a new measurement in the ongoing series,
- End** to come back to Home screen,
- Modify** to modify the selected sample, or series
- Data** to go back to the list of series.



2.2. Results display



2.3. Reference values

The reference values are displayed if they are available according to the grape variety. They correspond to the minimum, the maximum and the median values that were observed. If the database doesn't have enough data on this variety, values are indicated for the type of analysis and the color of the must or wine. They allow getting a reference regarding the values usually observed on the grape variety.

2.4. Modify a sample or a series

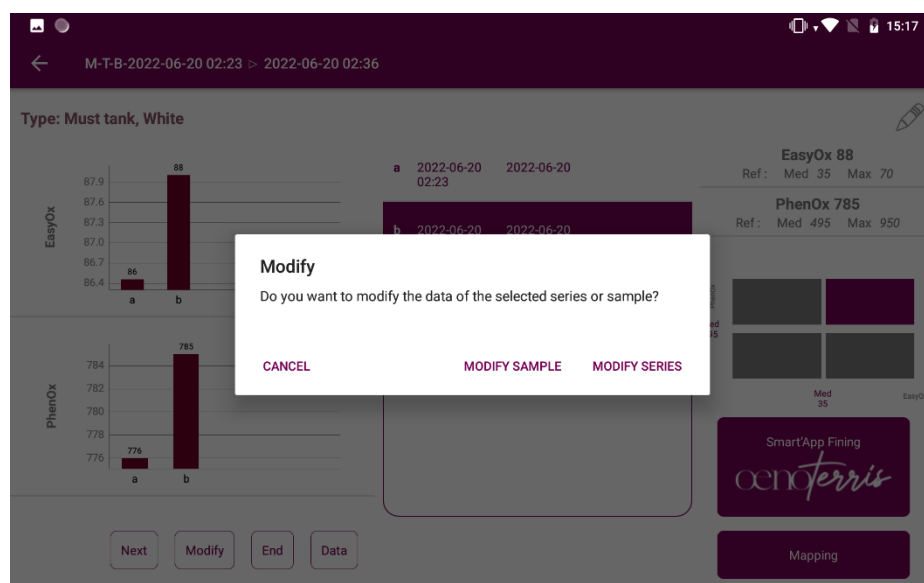
From the results screen of series



Select the sample to modify by clicking on the sample list (for instance sample 4). The selected sample name appears on the top of the screen.

Click on

Modify



Modify a series

You can then choose to modify:

- ① The color which will modify all the samples in the series
- ② The grape variety: what will modify all the samples in the series
- ③ The name of the series. Several series can have the same name

Maturity control	2 types	Red	Color	Variety
Pressing	Cellar	Rosé	Color	P-W-2022-06-15 11:28
Must tank	Cellar	White	Color	
Must oxygenation	Cellar	Sparkling	Color	
Prefermentative and fermentative maceration	Cellar			
Thermovinification	Cellar			
Ageing Strategy	Cellar			
Microoxygenation / lees ageing	Cellar			
Barrel ageing	Cellar			
Blending / bottling	Cellar			
Folin EDV	Distillation			

Save

Delete

To save changes, click on “Save “. Click on “Delete” allows to suppress the series.

Modify a sample

The screenshot shows a mobile application interface with a purple header bar. The header contains a back arrow, the text 'P-W-2022-06-15 11:28', and system status icons (signal, Wi-Fi, battery) along with the time '11:34'. The main content area is light gray. On the right side, there is a form with two main sections. The first section, labeled with a circled '1', contains a text input field with the value '2022-06-15 11:32'. Below this input are two buttons: a purple 'SAVE' button and a gray 'DELETE' button. The second section, labeled with a circled '2', is titled 'Comment:' and features a large, empty text area for input.

① name of the sample

② comment

Density and temperature can be modified for types of analysis that take into account those parameters.

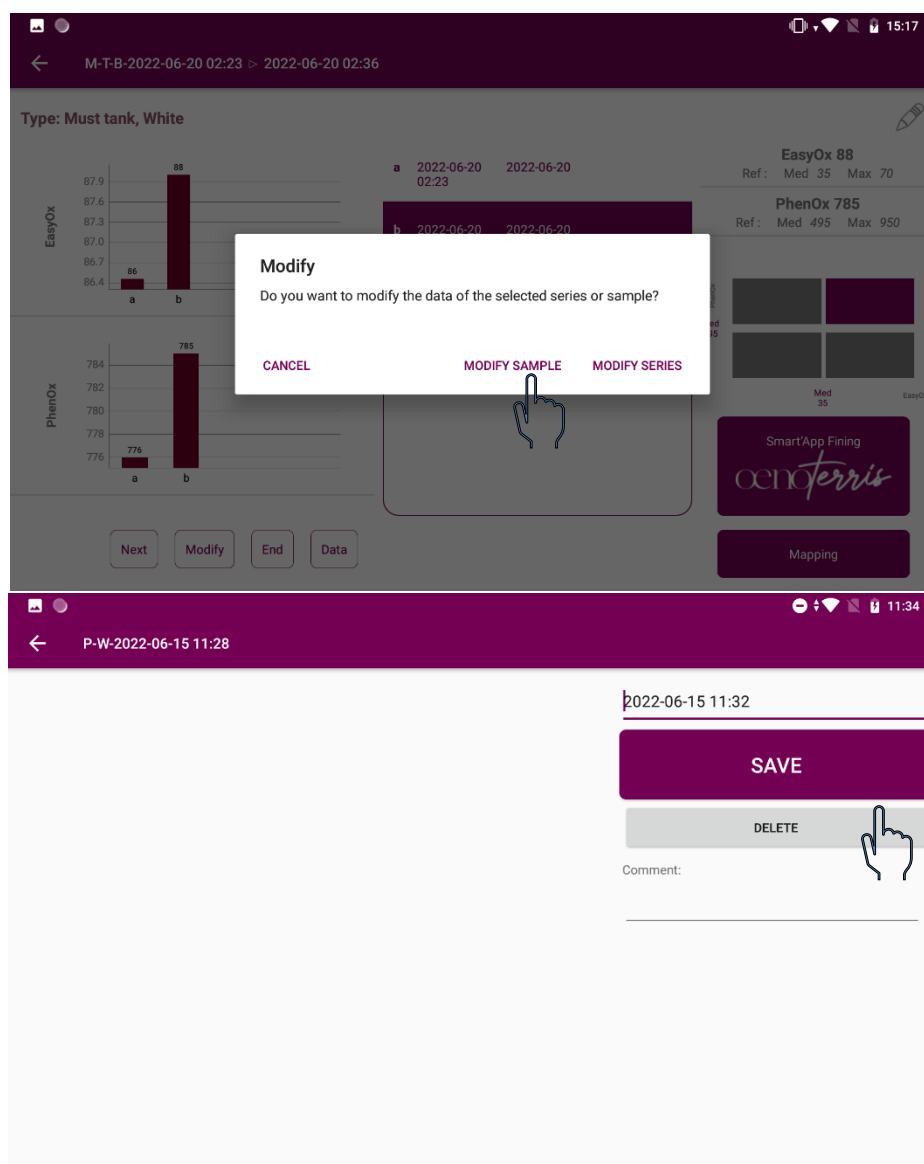
Click on « delete » allows to suppress a sample., be sure to have selected the correct sample.

2.5. Delete a measurement

Suppress a sample

Select the sample to delete

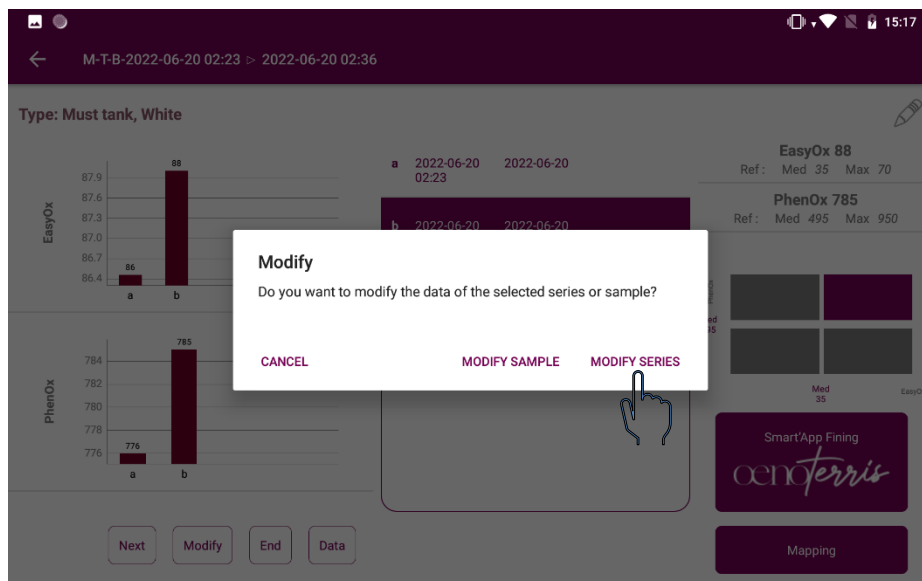
Click on Modify



Delete a series

Click on




Modify

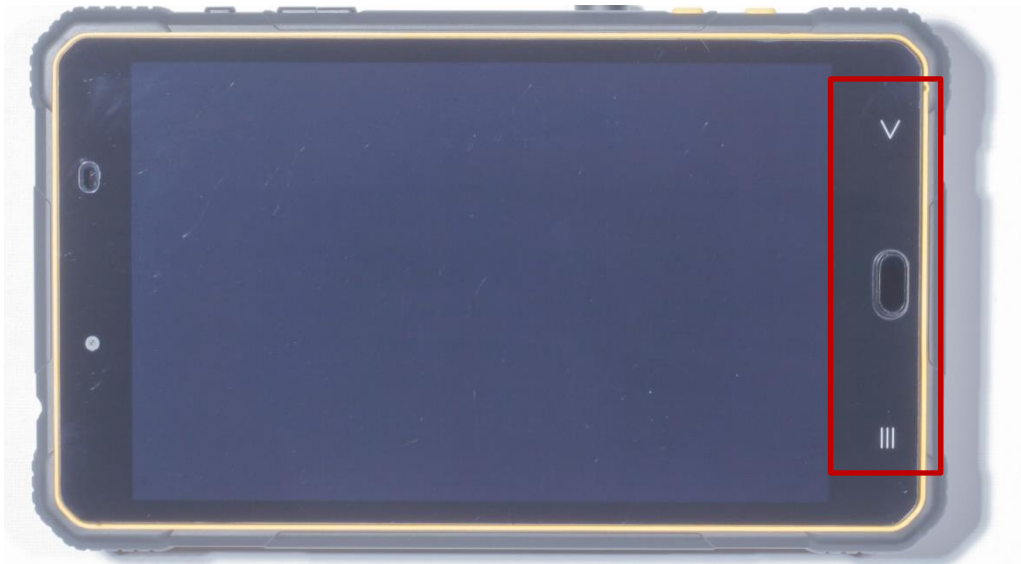


The screenshot shows the WQS Polyscan app interface. A table lists various wine-making parameters and their associated colors. The 'Must tank' row is highlighted in red. A 'Delete' button is visible at the bottom right of the table. The top status bar shows 'PolyScan 3' and the time '11:34'.

Parameter	Color
Maturity control	2 types
Pressing	Rosé
Must tank	White
Must oxygenation	Sparkling
Prefermentative and fermentative maceration	Cellar
Thermovinification	Cellar
Ageing Strategy	Cellar
Microoxygenation / lees ageing	Cellar
Barrel ageing	Cellar
Blending / bottling	Cellar
Folin EDV	Distillation

2.6. Navigation buttons on the right of the screen

-  Back to home page
-  To close applications in use
-  Previous screen



3. Performing a color measurement

3.1. Colorimeter connection

3.1.1. Colorimeter description



USB C charging

LED: green charging in progress, red on, colorimeter off

LCD display: L*a*b* value does not take measurement medium into account

Lens protection and calibration cover



Lens protection and calibration cover. The white ceramic is used for calibration: do not touch it with your fingers. Clean with lukewarm soapy water and a lint-free cloth only if necessary



The cover must be placed at the other end of the colorimeter during measurements.

3.1.2. Activate color measurement



The tablet's Bluetooth must be active.

PolyScan 2022

Maturity control	2 types
Pressing	Cellar
Must tank	Cellar
Must oxygenation	Cellar
Prefermentative and fermentative maceration	Cellar
Thermovinification	Cellar
Ageing Strategy	Cellar
Microoxygenation / lees ageing	Cellar
Barrel ageing	Cellar
Blending / bottling	Cellar

Serie name

Create series

Data

Key icon highlighted

Press the key icon to access the settings page.

Setup

Configure you Wi-Fi network, Nomascan account and info about your company.

WI-FI SETUP ACCOUNT SETUP DEVICE FAMILIAR NAME CALIBRATION

SAMPLES SYNC DATABASE RECONSTRUCTION SELECT UNITS SET FIXED TEMPERATURE

FINING AGENT SETTINGS

ENABLE COLOR MEASUREMENTS

Hardware type:
Device serial number / user:
Current app version / build date:
Last samples sync date:
Local samples sync status:

PolyScan-Android-2.1
7b1460168f8ddea / EBtest3
64 / 2024-04-02 11:45:55
2024-04-03 10:03:51
All synced

Activate color measurement (once activated, this measurement will remain active the next time you start up)

Setup

Configure you Wi-Fi network, Nomascan account and info about your company.

WI-FI SETUP ACCOUNT SETUP DEVICE FAMILIAR NAME CALIBRATION

SAMPLES SYNC DATABASE RECONSTRUCTION SELECT UNITS SET FIXED TEMPERATURE

FINING AGENT SETTINGS

DISABLE COLOR MEASUREMENTS CONNECT A COLORIMETER

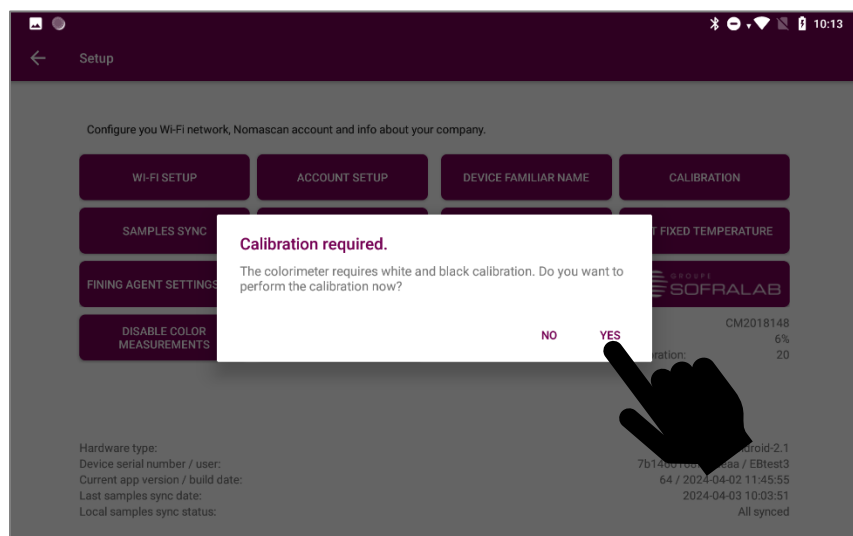
SETUP COLOR TARGETS

Connected colorimeter: None
Battery level: /
Remaining measurements before recalibration: /

Hardware type:
Device serial number / user:
Current app version / build date:
Last samples sync date:
Local samples sync status:

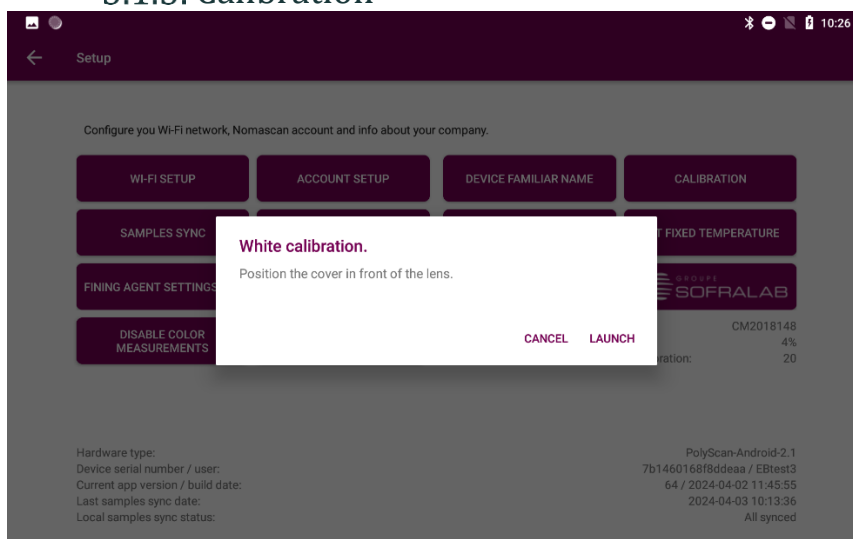
PolyScan-Android-2.1
7b1460168f8ddea / EBtest_matu
96 / 2025-04-03 09:58:42
2025-04-04 09:56:19
All synced

Press connect a colorimeter

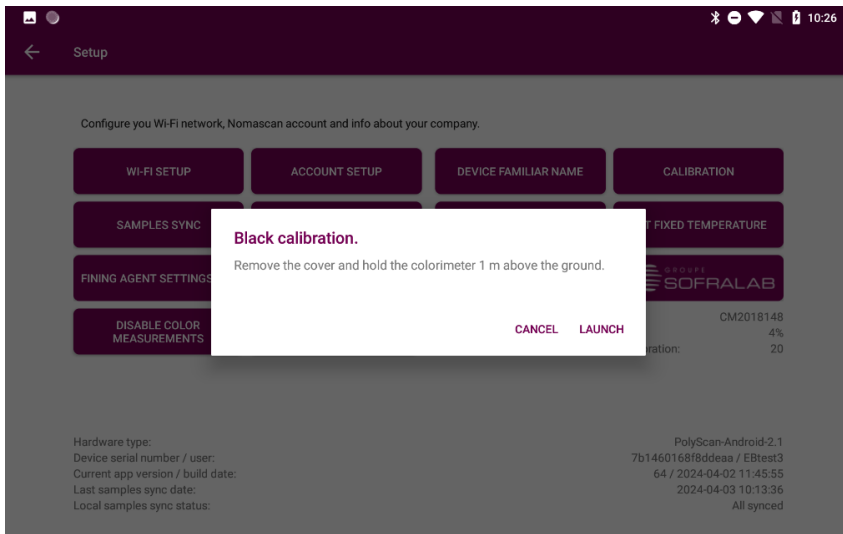


Press "Yes" to start calibration

3.1.3. Calibration



Place the colorimeter cover in front of the lens and press "launch"

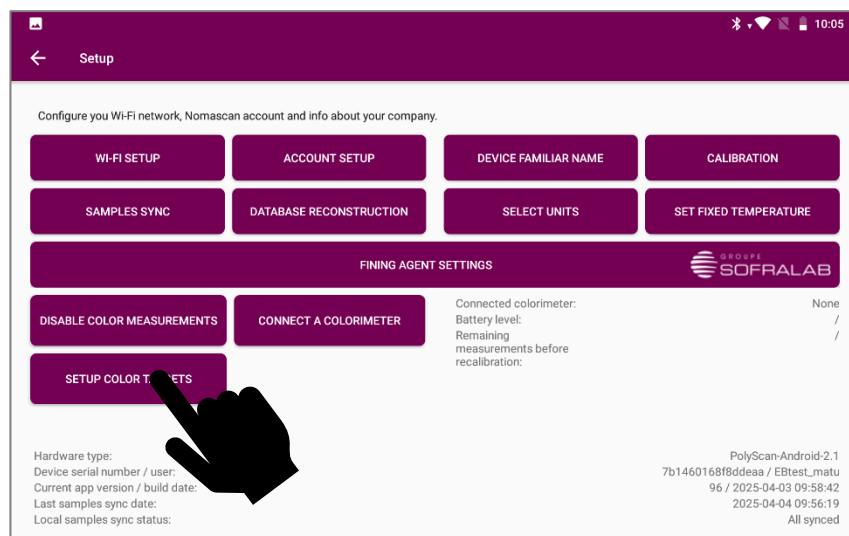


Remove the colorimeter cover and place it on the other end of the device, hold the colorimeter 1 m from the ground with the lens facing downwards and press "launch".

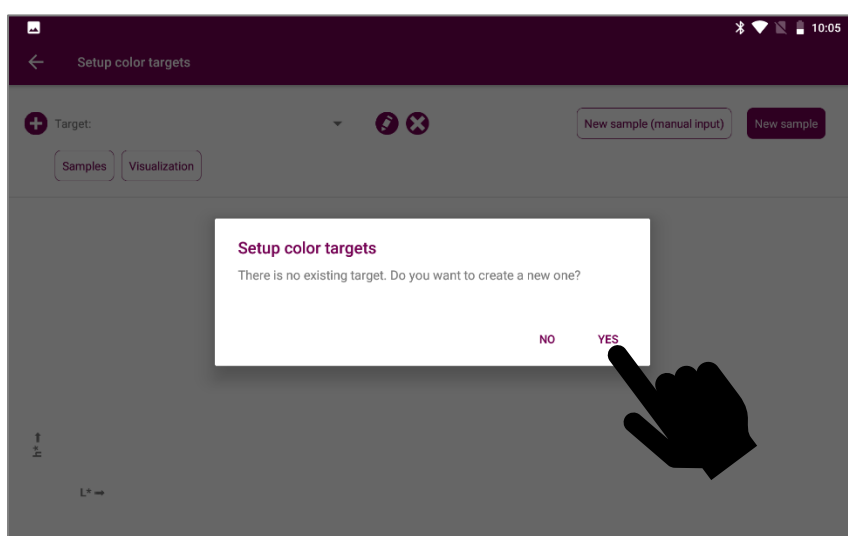
3.2. Set color targets

You can define color targets on your device. These targets are assigned to a "color" (white, rosé, red, sparkling) and a product type (must, wine).

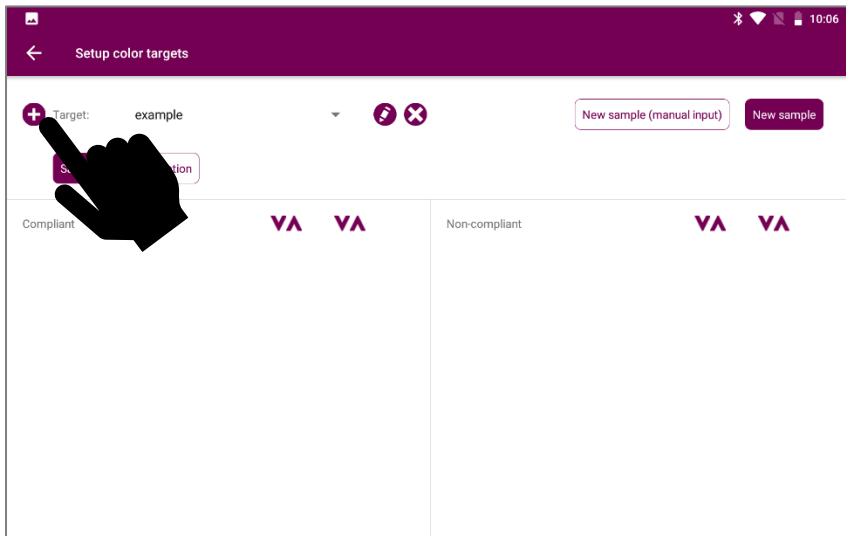
These targets can then be displayed in the measurement screens (series) and allow you to visualize the conformity of a sample.



Press on « SETUP COLOR TARGETS »

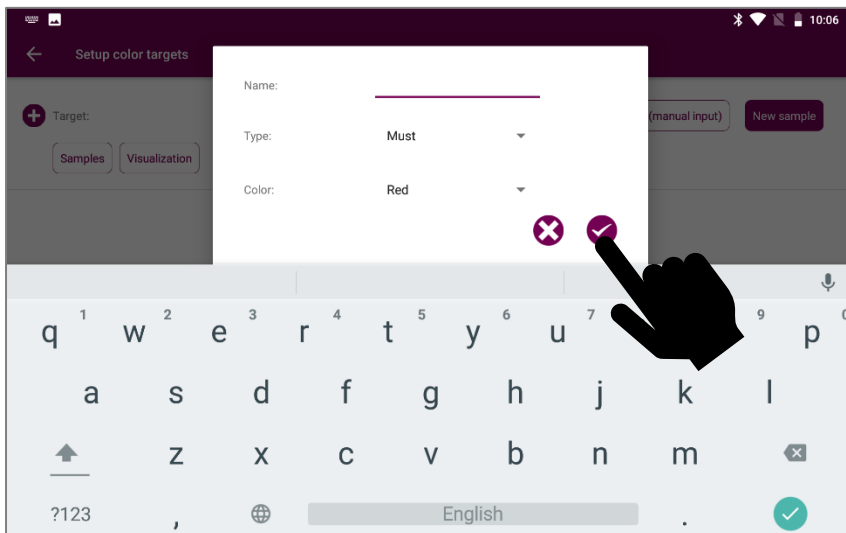


If no target is present, the application offers to create a new one.

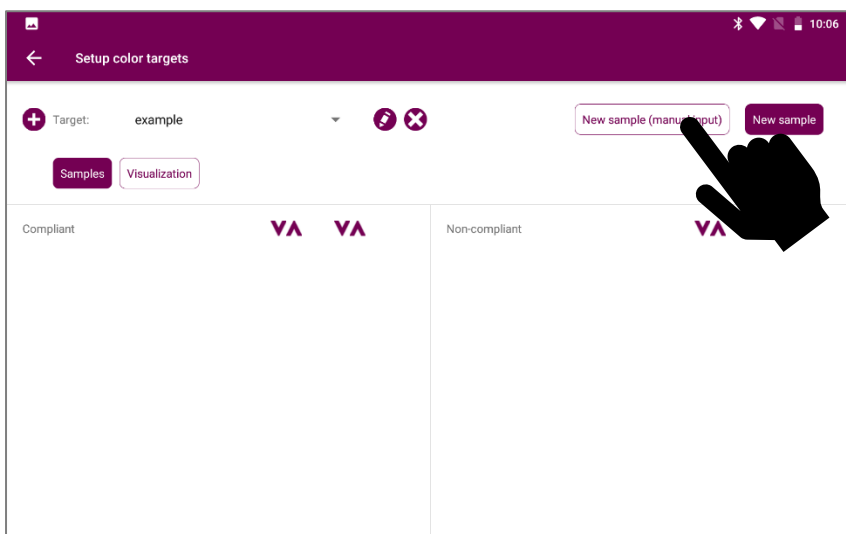


You can also add a target by pressing "plus."

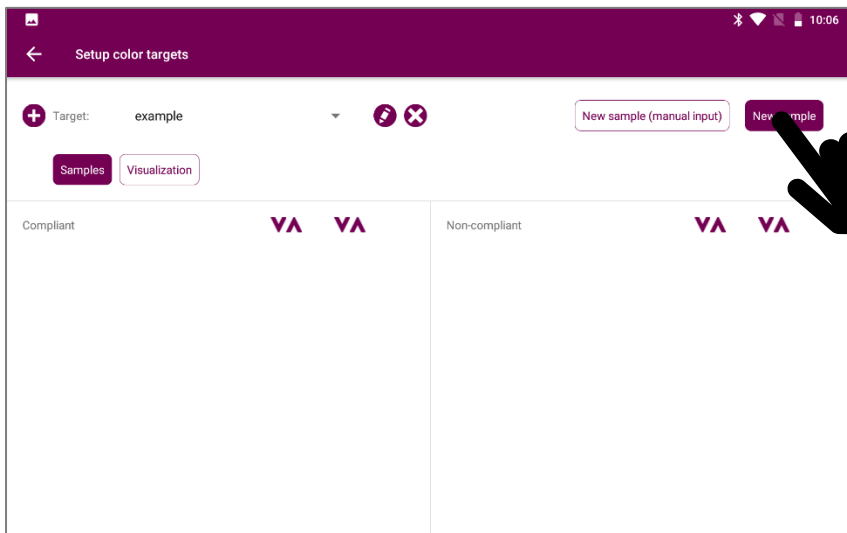
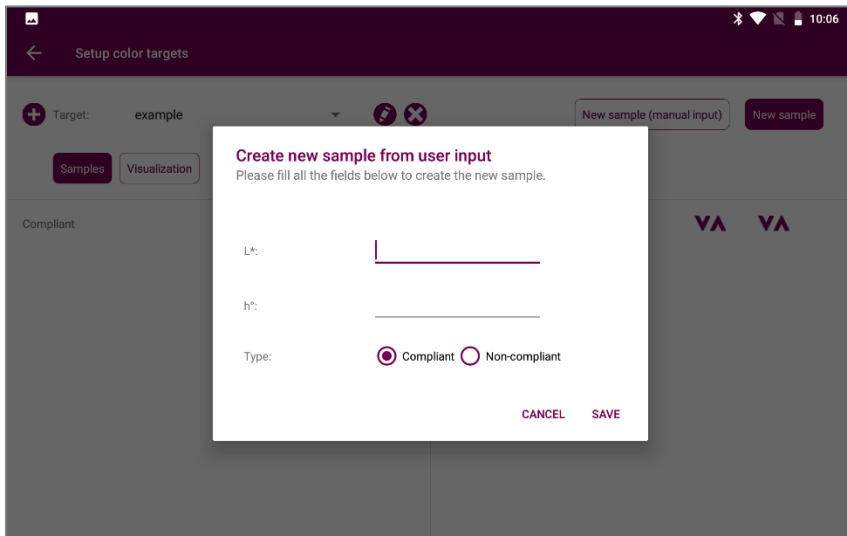
You can also delete and edit (rename) an existing target.!



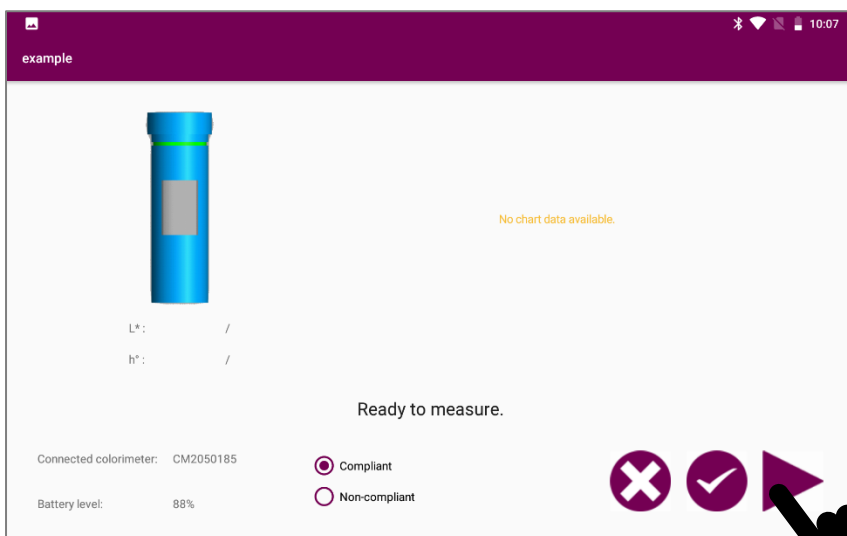
A target is defined by: a name, a type of product, a color (white, rosé, red, sparkling)

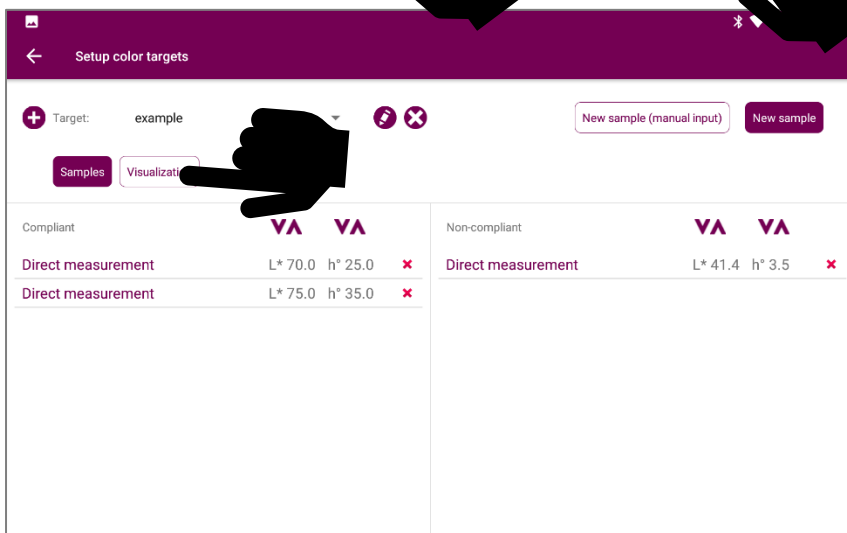
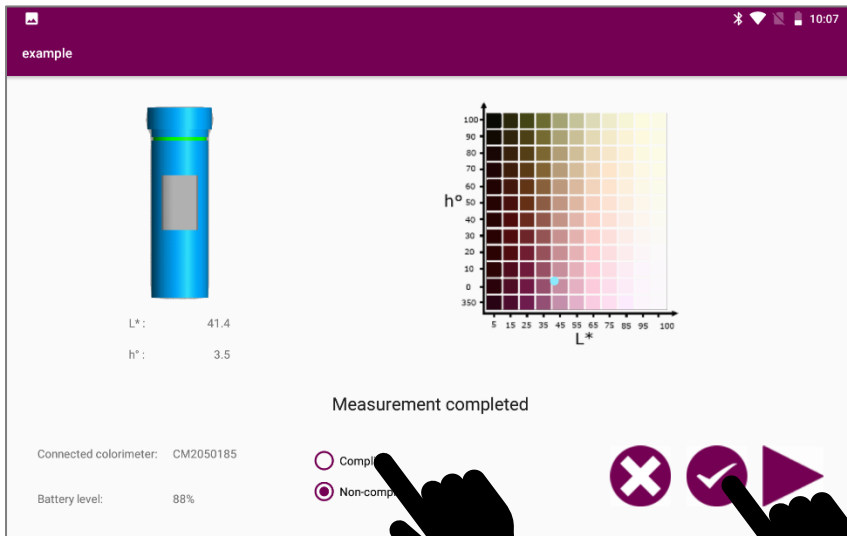


It is possible to create points manually to define the limits of the target acceptability zone (rectangle)

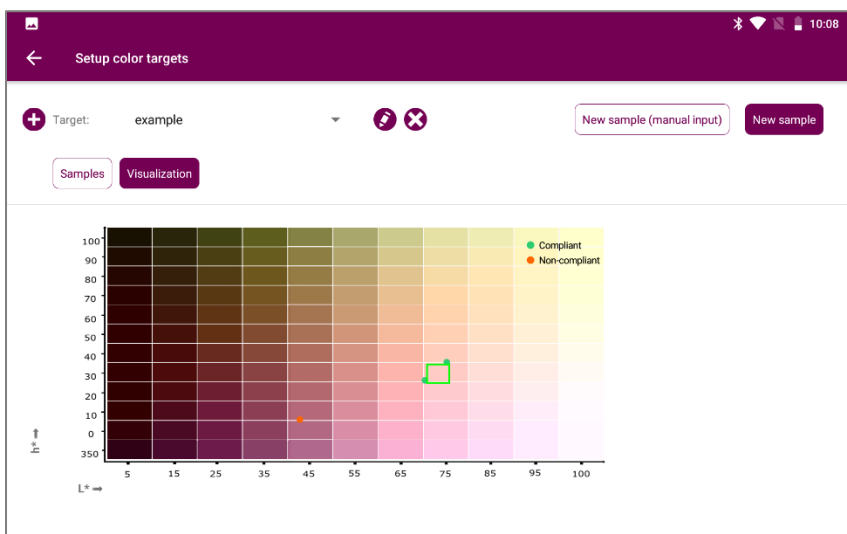


It is possible to perform measurements on real compliant or non-compliant samples to define the target.





It is possible to visualize the target, sort the samples according to their L* and h° values and delete certain samples.



3.3. Sample preparation

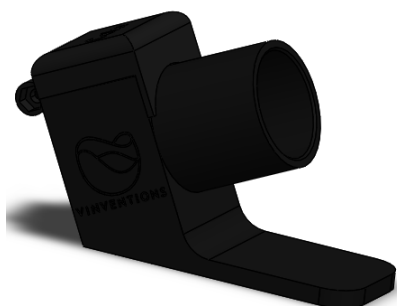
As the colorimeter measures in reflectance, it is not necessary to filter the sample except :

- At the end of alcoholic fermentation (lees in suspension)
- After carbon fining (presence of suspended particles)

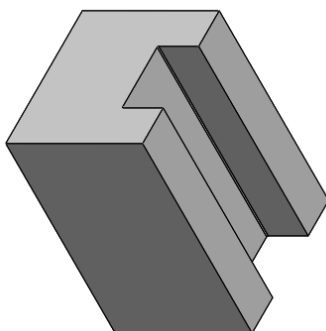
In the case of sulfited musts, the use of H_2O_2 to reveal color potential is strongly recommended: 1 drop H_2O_2 30 vol. in 100 mL must, wait 5 min before measuring.

For wines, we recommend adjusting the SO_2L content to the target value at bottling.

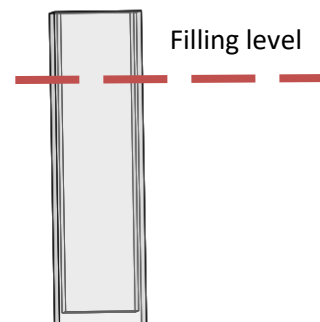
3.4. Preparing the colorimeter



Support



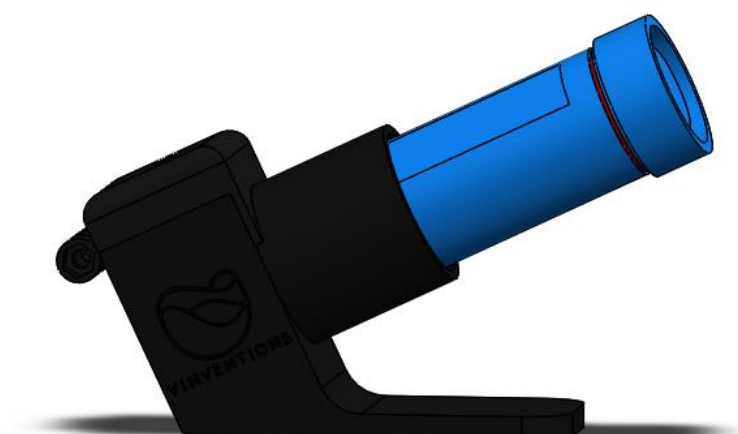
White background



Cell



Pre-measurement
assembly



Ready to measure

White background: take care not to use any solvent that could damage the paintwork: clean with soapy water only.

Cell: keep the cell clean, cleaning with soapy water or ethanol. A soak in soapy water for a few hours will clean a dirty bowl.

3.5. Measurement and result

Color measurements are available for Pressing/ Settling tank/ Must oxygenation/ End of AF orientation/ Barrel maturation/ Blending/ Bottling

- 1- Choose a measurement type
- 2- Select must or wine type (rosé / white / sparkling)
- 3- Select a grape variety
- 4- Enter a series name
- 5- Press Create series

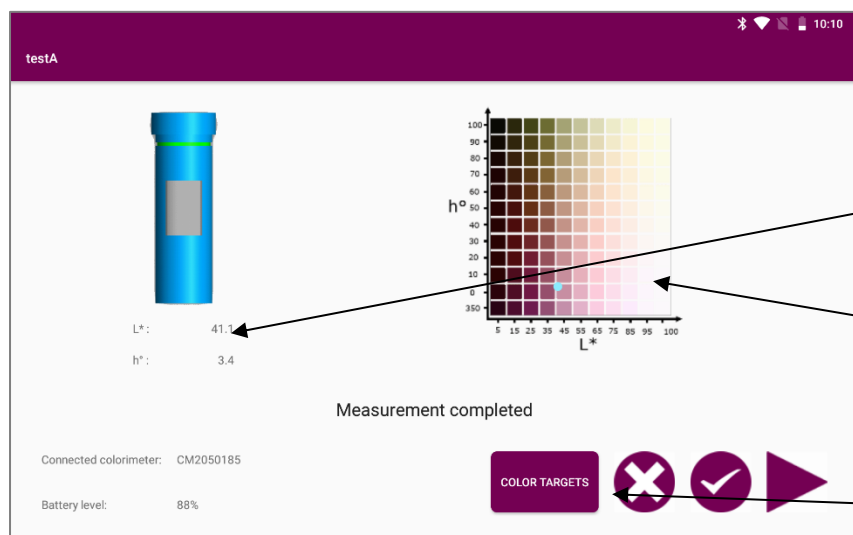
- 1- Select "Color"
- 2- Press "Start"



Quit/abandon

Save

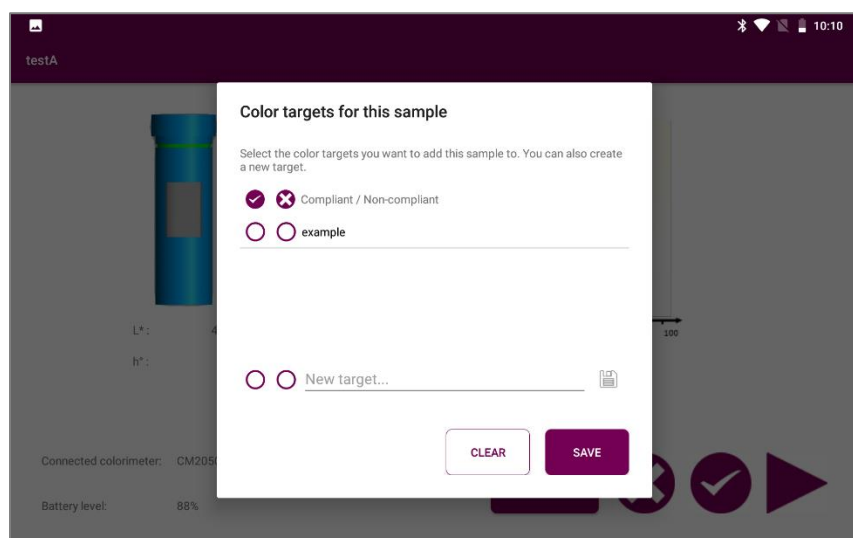
Start measurement



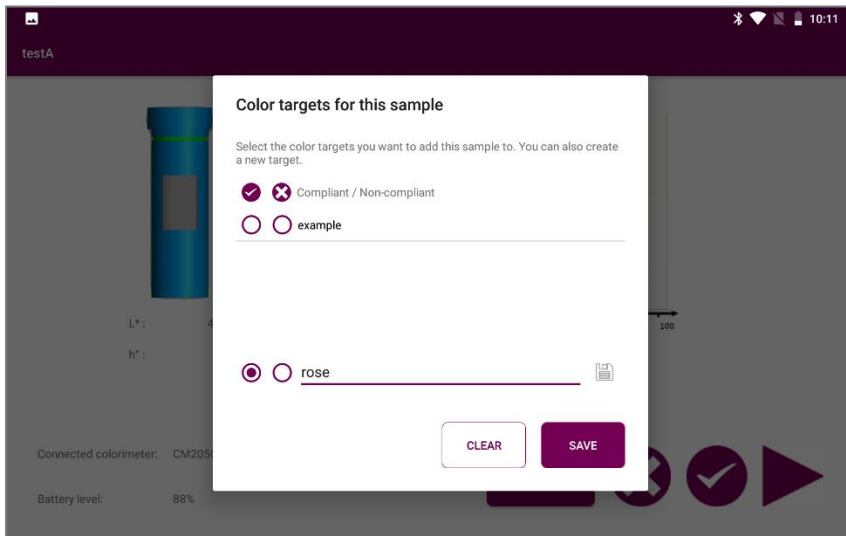
L* and h° results

Color preview in L*/h° graph

Possibility of assigning the sample to one or more targets (compliant or non-compliant)

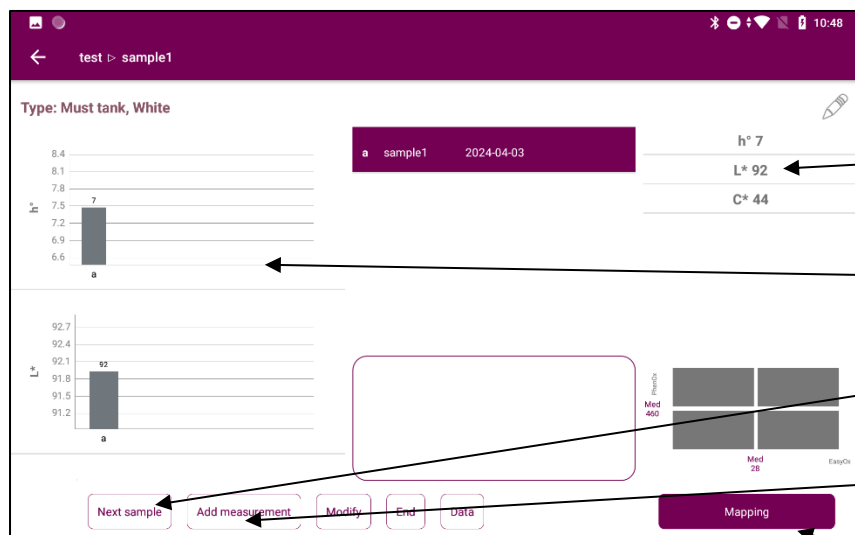


The sample can be defined as conforming/non-conforming with respect to one or more targets



It is also possible to create a new target from a measured sample.

Pressing / Settling tank / Must oxygenation



L*C* h° and/or Polyscan results

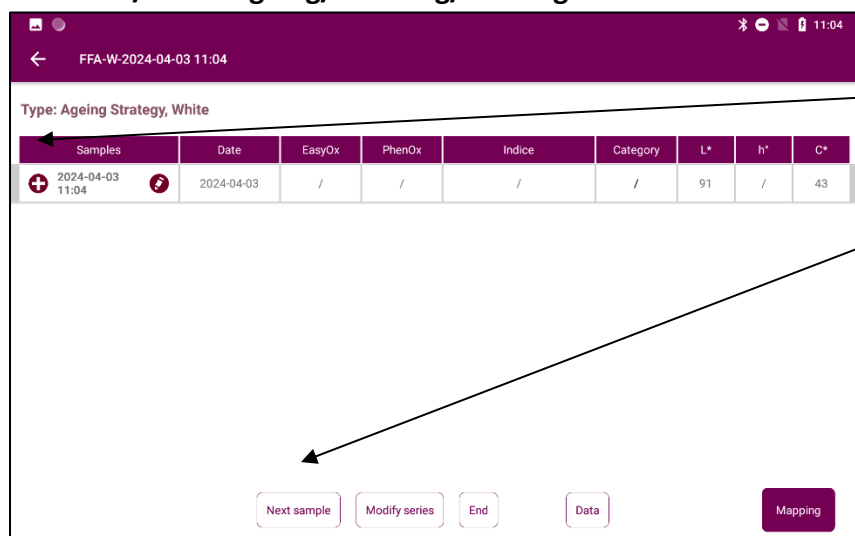
L*h° and/or Polyscan graphs

Graphiques L*h° et/ou Polyscan

Completing a sample (Polyscan measurement)

Mapping

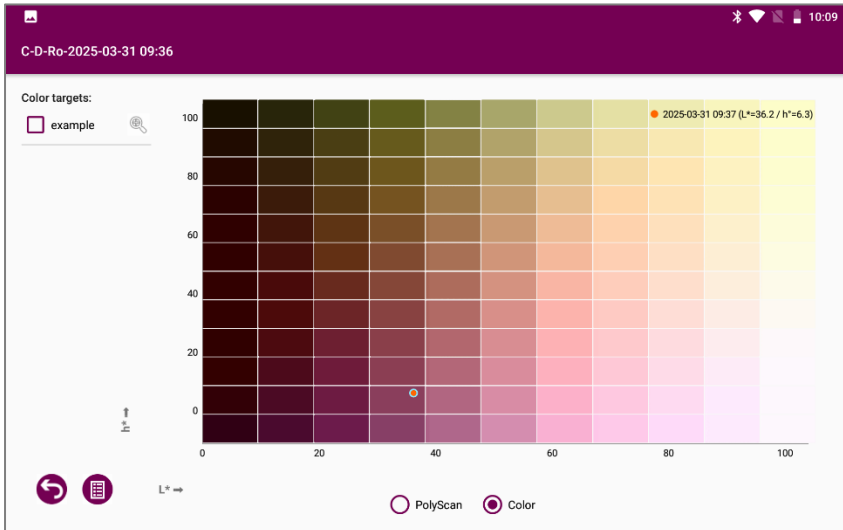
End of AF/barrel ageing/blending/bottling orientation



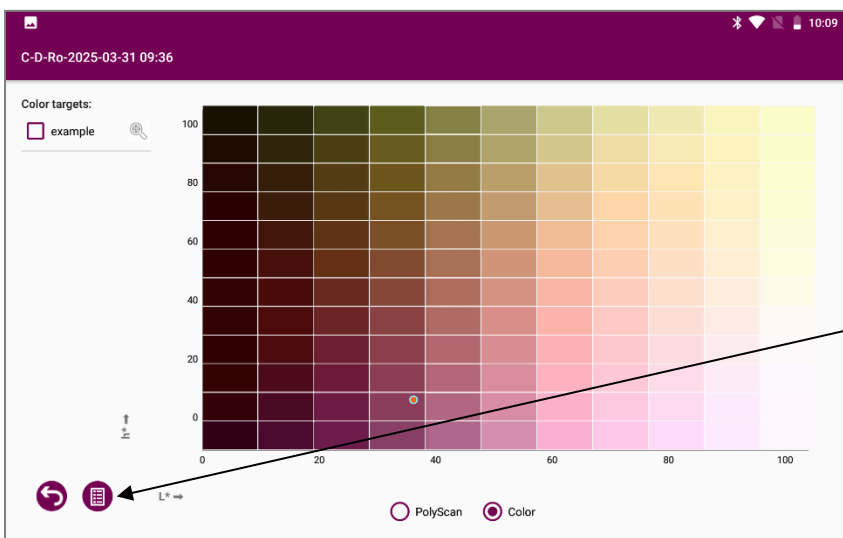
Completing a sample (Polyscan measurement)

New sample

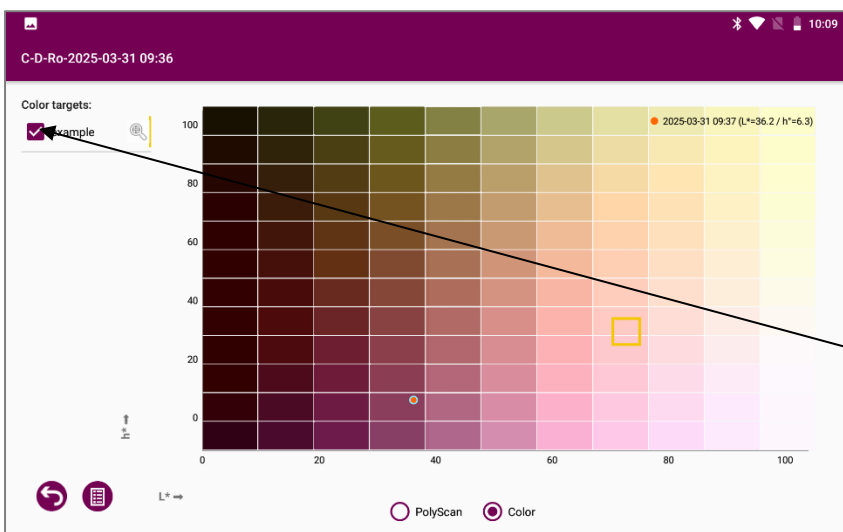
In all menus, the "Mapping" button is used to plot the samples in the series on an L^*/h° graph.



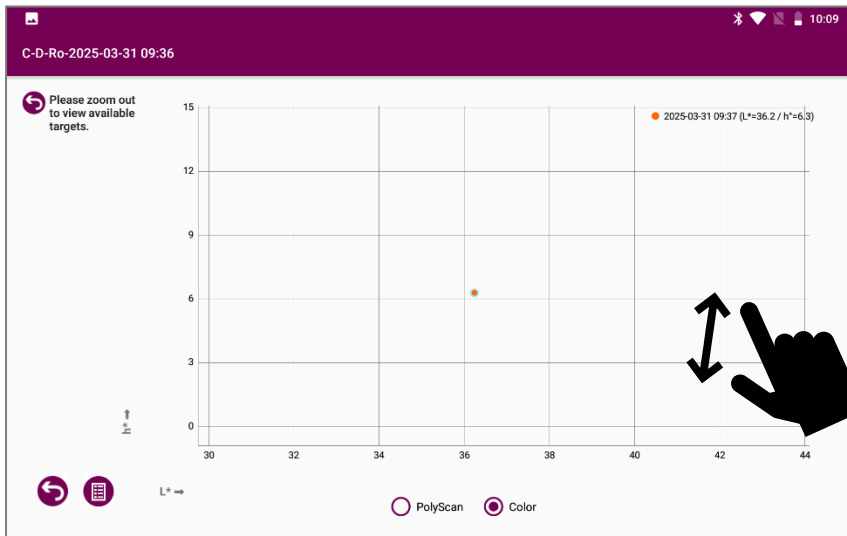
L^*/h° graphical representation of results for samples in the series



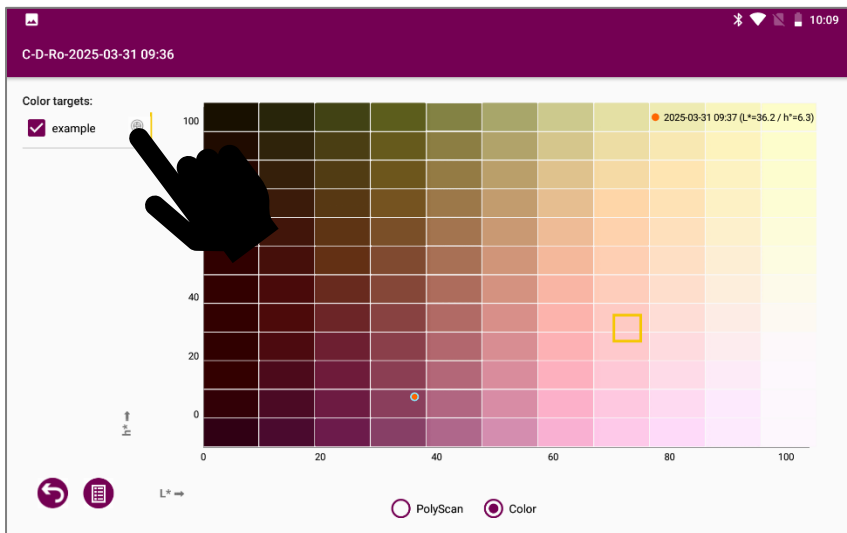
Show/hide legend



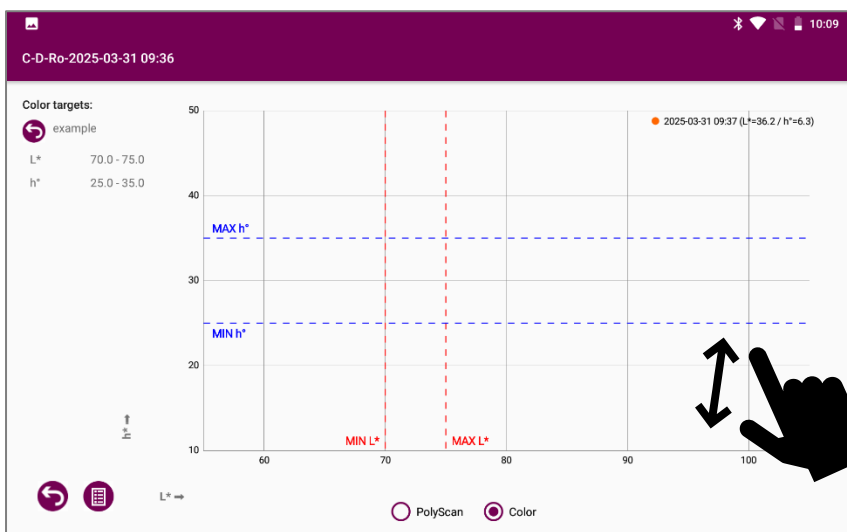
Show/hide available targets



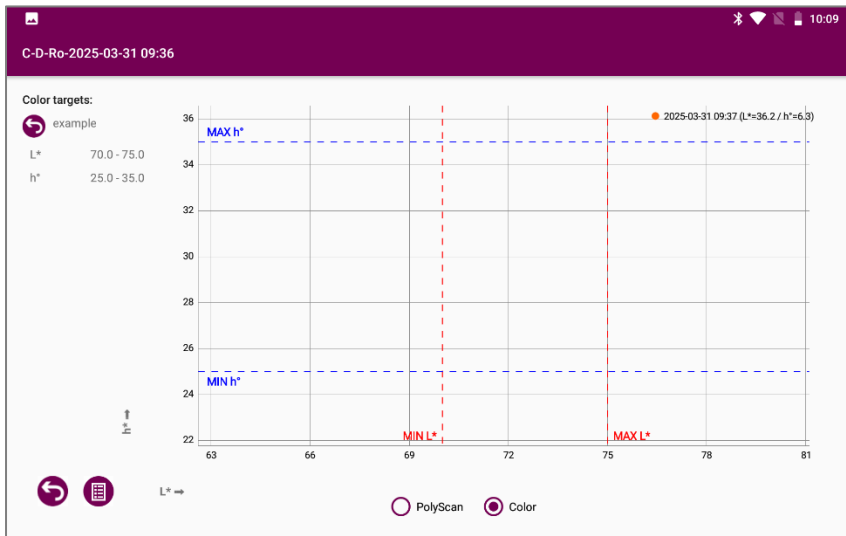
Ability to “zoom in” on the graph



Ability to focus the view on a target.



Ability to zoom into a target.
The target's boundaries are highlighted.




4. Type of analysis

For each type of analysis, the indexes calculation is specific. For a series of measurements, ensure that each measurement is performed in the same type of analysis. The analyzes are accessible according to the subscribed packs.

Maturity Pack : maturity control

Vinification Pack: pressing, settling tank, must oxygenation, Thermovinification, fermentative maceration, ageing strategy, micro-oxygenation, barrel aging, blending/bottling.

Pack Smart App Fining : Developed in partnership with Sofralab, for a reasoned fining on musts.

On the home screen of the application, the icon  provides access to essential information on each type of measurement.

From the voltammograms (intensity/potential curve) Polyscan calculates different indices according to the types of analysis selected.

- **EasyOx** : easily oxidizable compounds (caftaric acid, anthocyanins...)
- **PhenOx** : total polyphenols (correlated to Folin index)
- **Tan/Acn** : Tannins/ Anthocyanins ratio → balance between tannins and anthocyanins
- **IPT_volta** : estimation of total polyphenols index
- **MaturOx** : index used to determine the level of aromatic maturity
- **Ageing State** : opening state index
- **TE index** : sensitivity to oxidation index

The colorimeter measures :

- - L*C*h°: color values CielCh


PolyScan 3





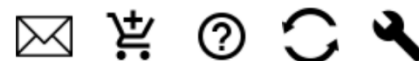
11:23

Maturity control	2 types
Pressing	Cellar
Must tank	Cellar
Must oxygenation	Cellar
Prefermentative and fermentative maceration	Cellar
Thermovinification	Cellar
Ageing Strategy	Cellar
Microoxygenation / lees ageing	Cellar
Barrel ageing	Cellar
Blending / bottling	Cellar
Folin EDV	Distillation

Serie name

Create series

Data



4.1. Maturity Control

This analysis is adequate in the following cases:

- Maturity control on grapes
- Parcel polyphenolic profile characterization

Two types of analysis are available:

- Polyphenolic potential: to evaluate the amount of polyphenols, sample preparation is necessary. One series for one plot or several plots with the same variety.
- Aromatic sequence : to determine when to harvest according a targeted aromatic profile. One series for one plot. First measurement at the end of veraison.

PolyScan 3

Maturity control 2 types

Pressing	Cellar
Must tank	Cellar
Must oxygenation	Cellar
Prefermentative and fermentative maceration	Cellar
Thermovinification	Cellar
Ageing Strategy	Cellar
Microoxygenation / lees ageing	Cellar
Barrel ageing	Cellar
Blending / bottling	Cellar
Folin EDV	Distillation

Serie name

Create series

Data

Polyphenolic profile

Aromatic sequence

4.1.1. Maturity control on red and white grapes

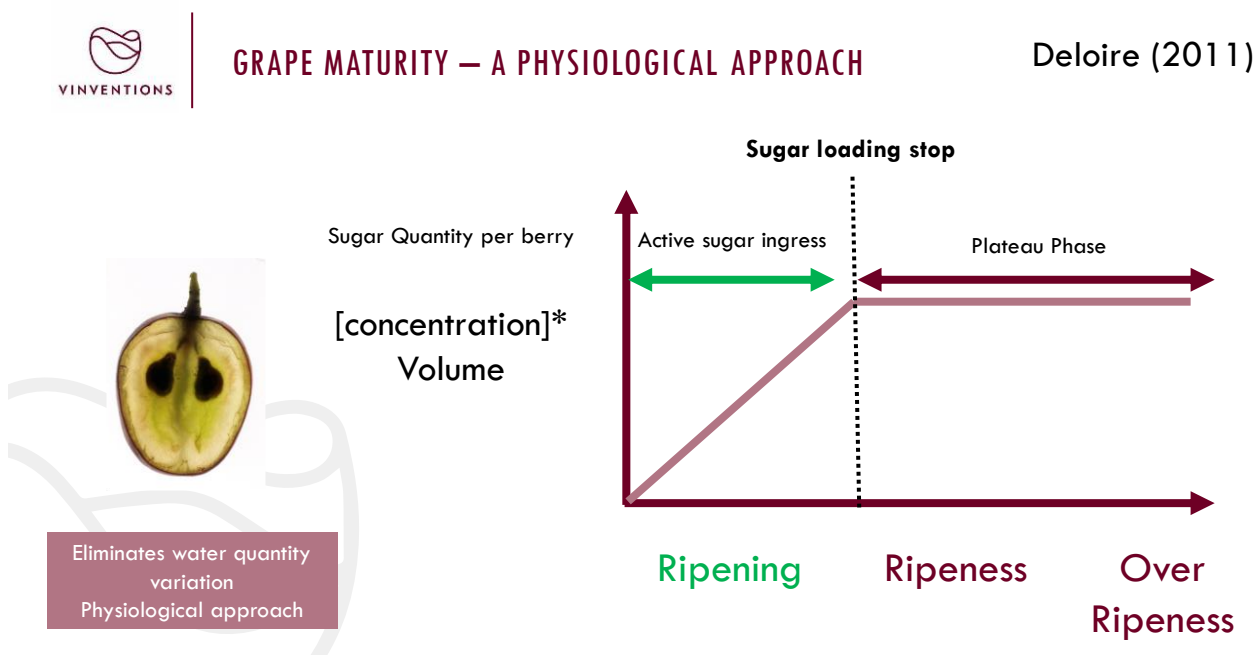
Measurement is done directly on juice during a usual maturity control.

Warning: as soon as the juice is pressed, **perform Polyscan analysis immediately** before proceeding to others usual maturity measurement (e.g. sugar content).

Attention : lorsque le jus est pressé, réaliser immédiatement l'analyse Polyscan avant de procéder aux analyses de maturité classique.

4.1.1.1- Concepts

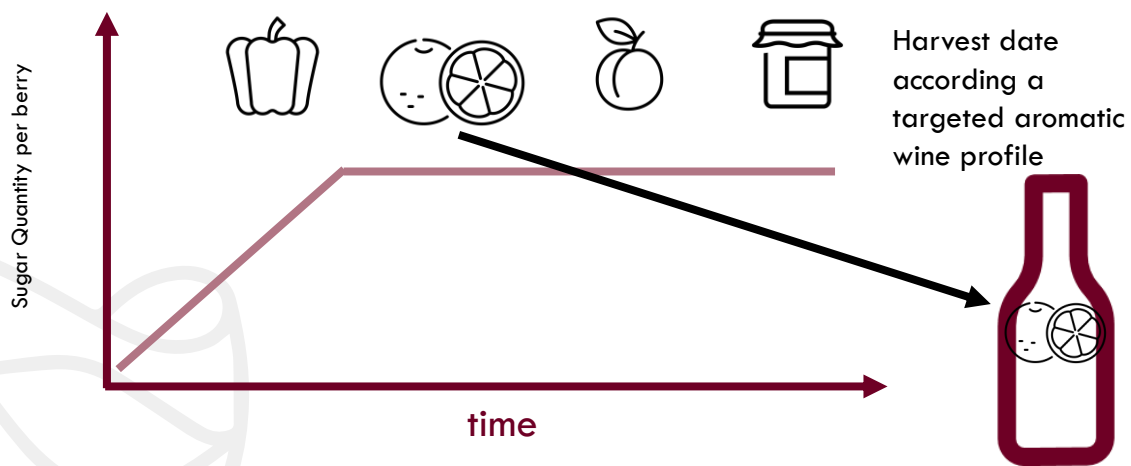
The works of Pf Alain Deloire has shown the interest of sugar loading monitoring to characterize berry ripening. Indeed, this indicator by making it possible to overcome variations in the water content of the berry allows an accurate reading of the ripening of the grape and the determination of different phases during ripening.



These works have highlighted the phenomena of "Berry Aromatic Sequence" during ripening. The sugar loading through the determination of sugar loading stop allows to determine a time indicator for the beginning of aromatic sequence.



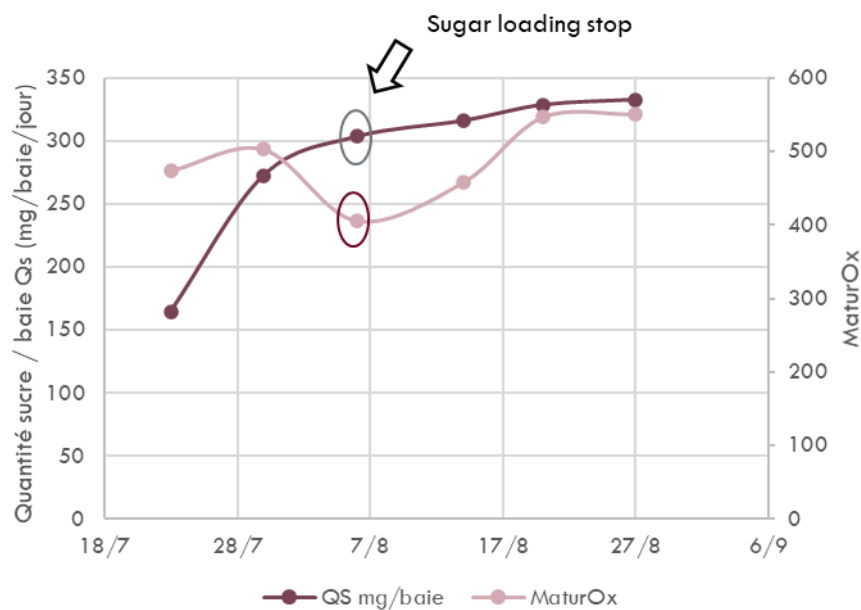
GRAPE « MATURITIES »: THE BERRY AROMATIC SEQUENCE



Suklje, 2017; Schmidtke, 2020

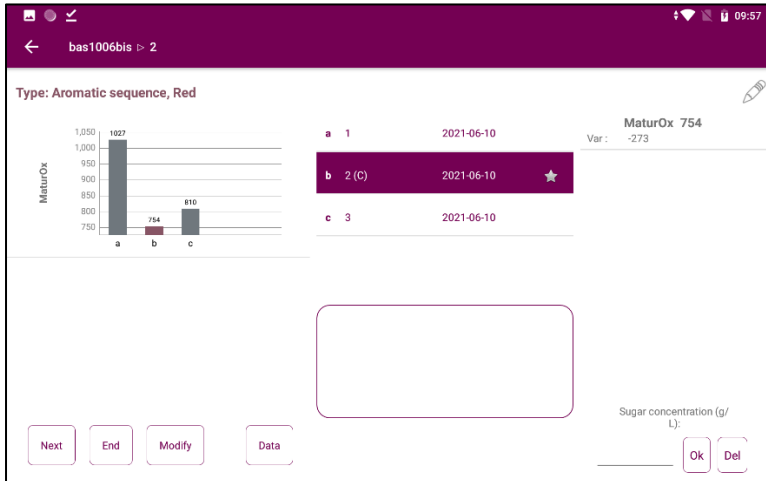
Variety dependant

During the monitoring performed on various varieties and numerous plots, it has been shown that a minimum of voltametry signal occurs at sugar loading stop.

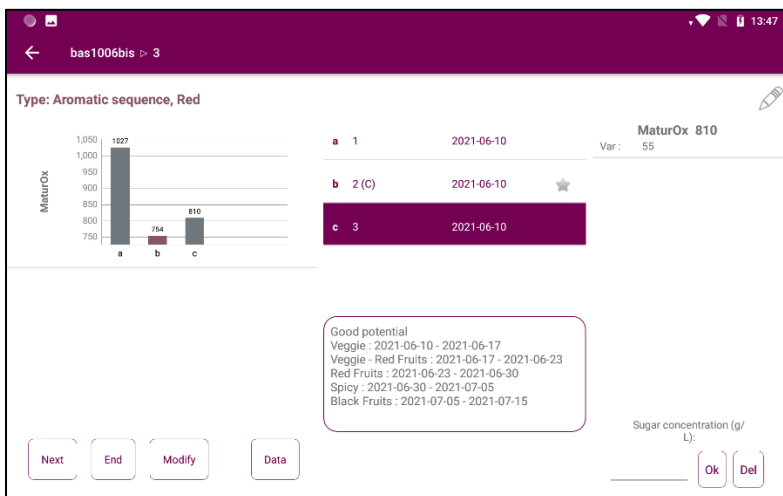


4.1.1.2- Aromatic sequence

The index dedicated to Aromatic sequence is the « MaturOx ».



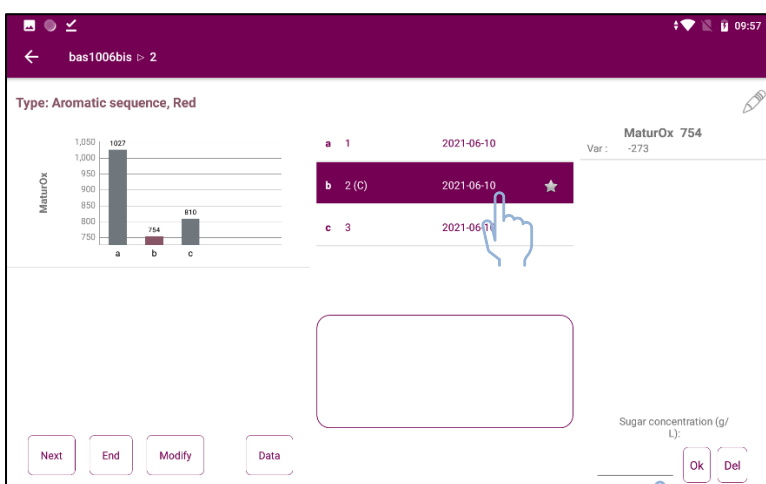
Minimum is colored in pink in the graph. A star symbol is also displayed next to the sample name in the sample list



When the sugar concentration of the samples have been typed in and a minimum has been determined, windows are displayed for the different aromatic profiles.

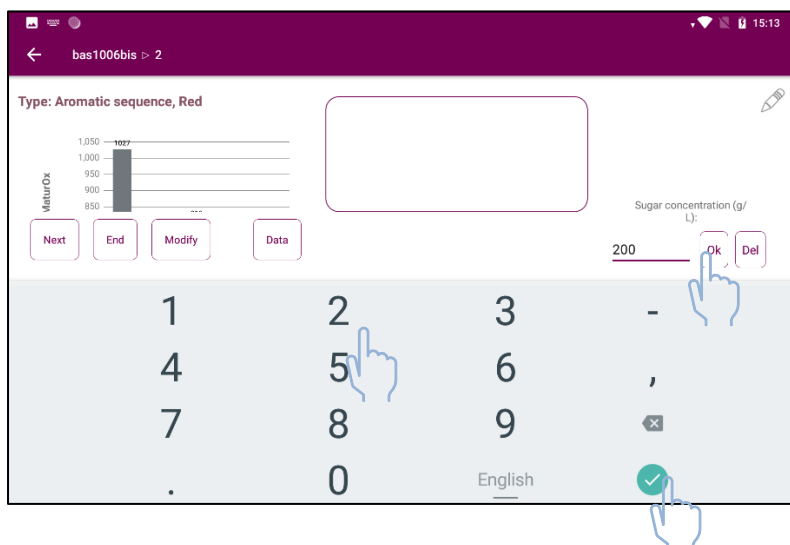
These profiles are variety dependents.

Entering the sugar concentration



Select the sample.

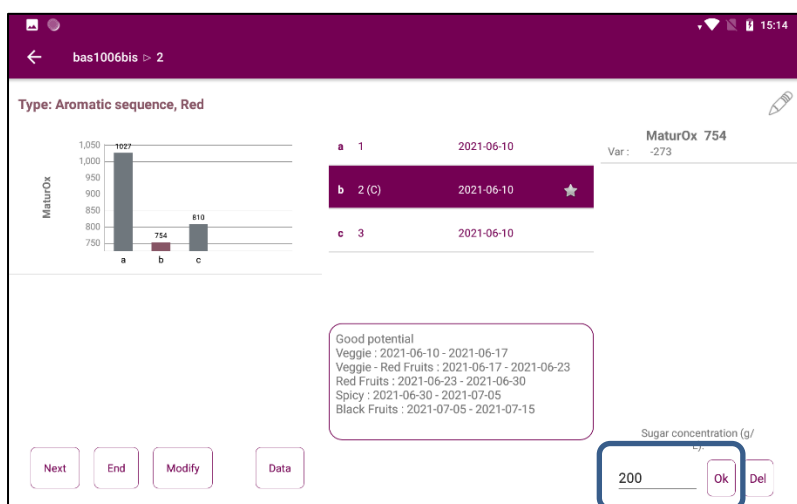
Click on the sugar concentration input area.



Type in sugar concentration value in g/L

Press the green validation symbol.

Press OK to validate.



The sugar concentration (g/L) value is displayed when the sample is selected.

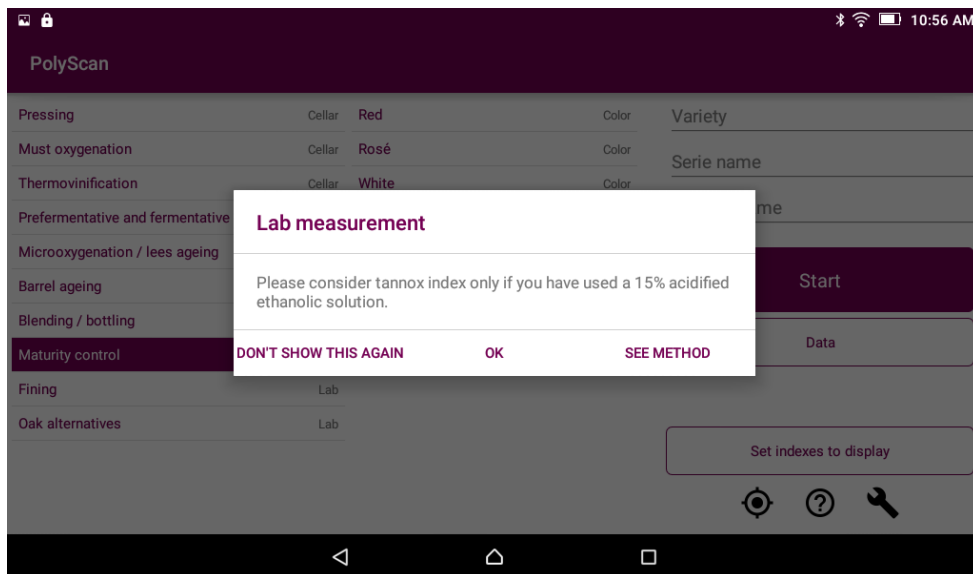
4.1.2. Polyphenolic profile characterization on red grapes

- Pick 200 berries from the parcel to analyze
- Crush them for 2 minutes in a blender
- Sample exactly 50 g from the crushed obtained and add 100 mL of extraction solvent

Extraction solvent can be prepared as follow:

For 10 L: add to 8.5 liters of distilled water 1.5 liter of ethanol 96% and adjust pH to 3 with hydrochloric acid 12N.

- The diluted crushed must be stirred few second every 15 minutes for 1 hour at room temperature. The obtained homogenate can thus be settle for 30 minutes
- After this step, juice can be dropped on the electrode
- Launch measurement



4.2. Pressing

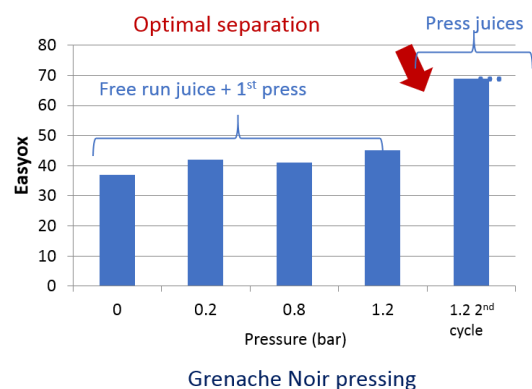
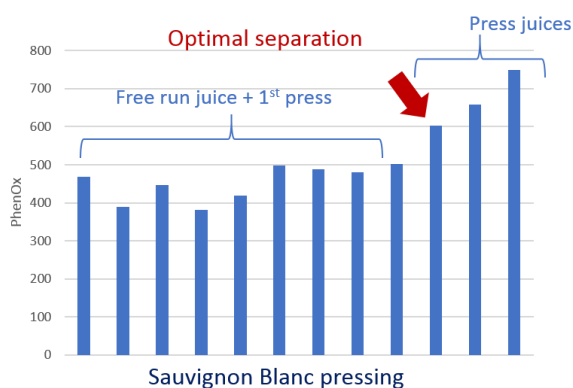
The pressing analysis allows defining when juices separation is optimal depending on the polyphenol content.

Method:

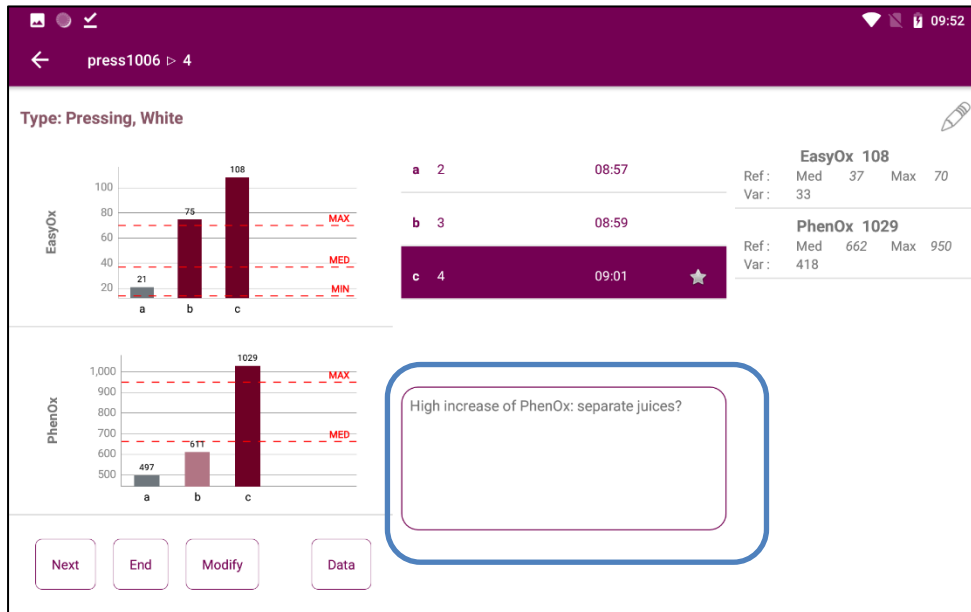
- Sample juice as soon as it runs from the press, at the beginning of each pressure cycle
- Avoid sampling at the end of a pressure cycle when the juice flow is low or when juices stayed too long in contact with air (fast oxidation => impact on results)
- **Measurement must be done right after sampling to avoid oxidation impact.**

Example of pressing monitoring on White et Rosé:

Progressive extraction => allows separating juices depending on their polyphenol concentration



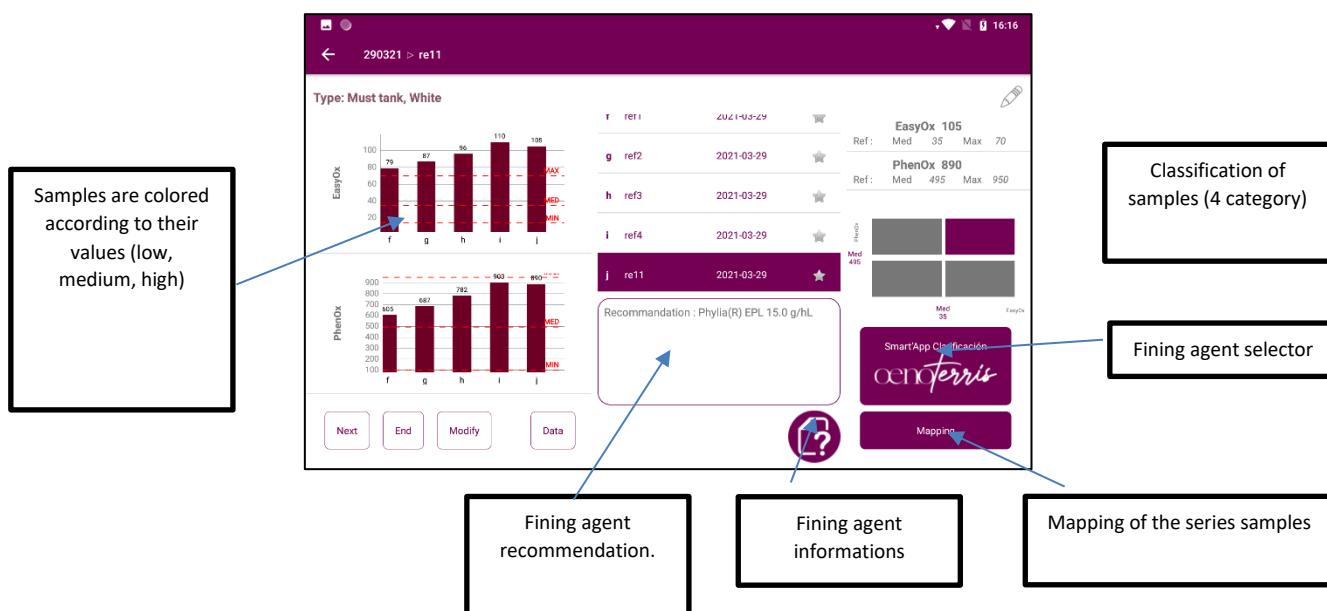
When a significant increase in the indexes is observed, a pop-up message appears on the screen recommending the separation of the juices based on their polyphenol concentration.



4.3. Must tanks

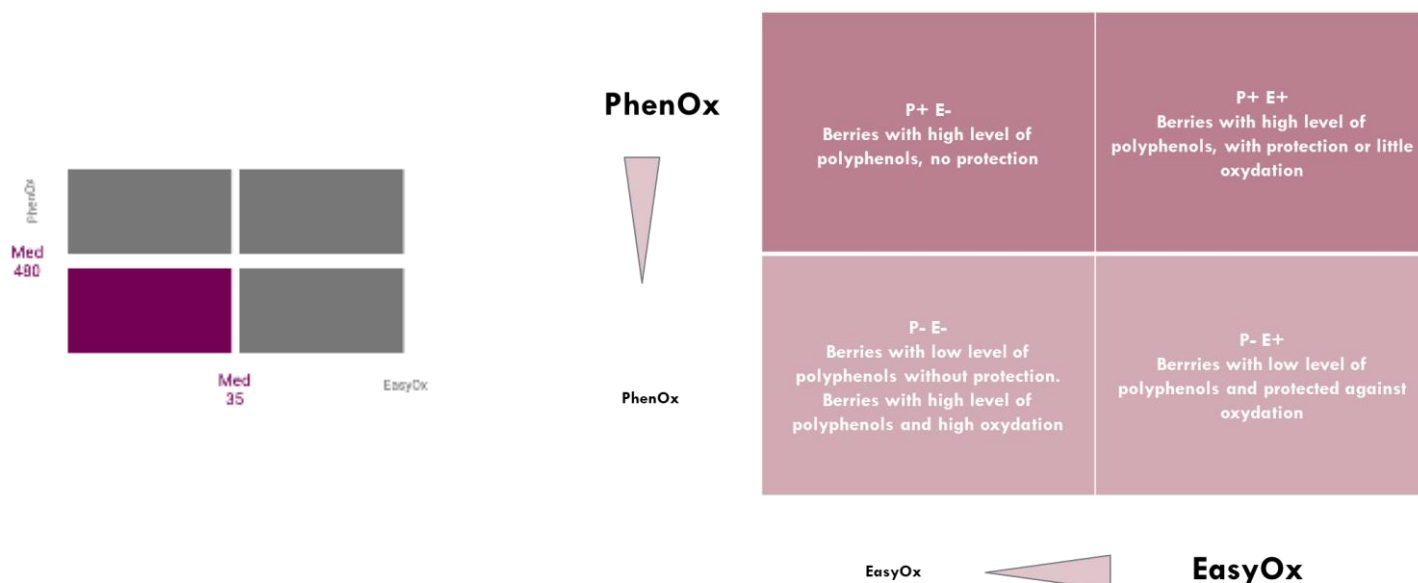
Must tanks analysis makes it possible to characterize the musts in vats after pressing in order to adapt the preferential treatments to be applied to optimize the management of polyphenols.

4.3.1. Main screen



Categorization of juices:

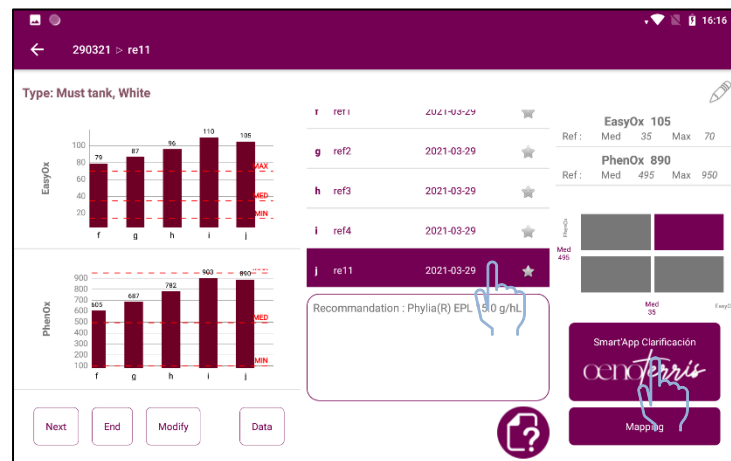
The graph on the right of the window makes it possible to categorize the juices according to their polyphenol content compared to the median content observed in the musts of the selected grape variety or color.



The colored box characterizes the sample according to references values (median of PhenOx and EasyOx from the database). In each category, musts have different profiles and need an adapted process.

4.3.2. Fining agent selector

To guide the choice of prefermentation finings, the Smart'App Collage Oenoterris application was developed based on the categorization of juices described above and on the knowledge of the SOFRALAB group of the effect of the glues of its different glues. Beyond the Polyscan measurement, the purpose of the bonding is requested from the user.



Select a sample and press Smart'App Fining Oenoterris.

The screenshot shows the 'Smart'App Fining interface. At the top, it displays 'Smart'App Fining'. Below this, there are two radio buttons for 'Type of settling': 'Static Settling' and 'Flotation'. Under 'Must characteristics', there are two sections: 'Oxidation shades' and 'Coloring intensity'. The 'Oxidation shades' section has three options: 'Weak', 'Means', and 'Too high'. The 'Coloring intensity' section has three options: 'Ok', '+', and '++'. A hand icon points to the '++' option. To the right, there are three sliders for 'L*', 'C*', and 'h*'. Below these, there are checkboxes for 'Fining goals': 'Clarifying', 'Decrease bitterness', 'Increase volume', and 'Increase length'. At the bottom, there are checkboxes for 'Constraints': 'Allergen free', 'Organic', 'Vegan', and 'NOP'. A 'RESULTS' button is at the bottom right, with a hand icon pointing to it.

Set the goals and the constraints of the fining

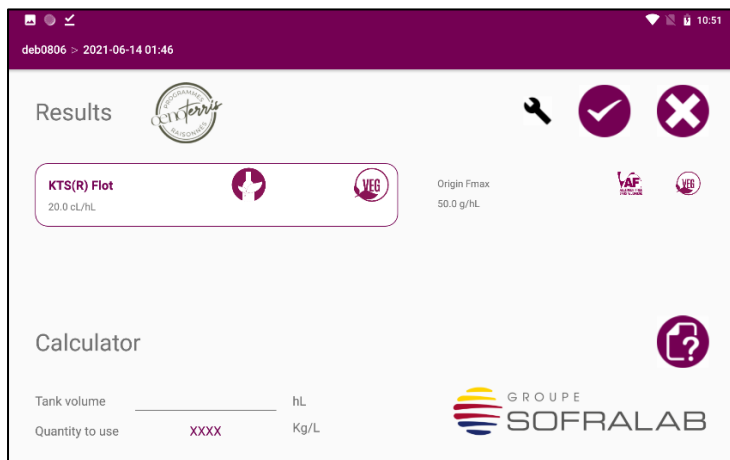


Maximum two goals

From zero to all constraints



Fining agents complying the selected constraints only can be recommended.

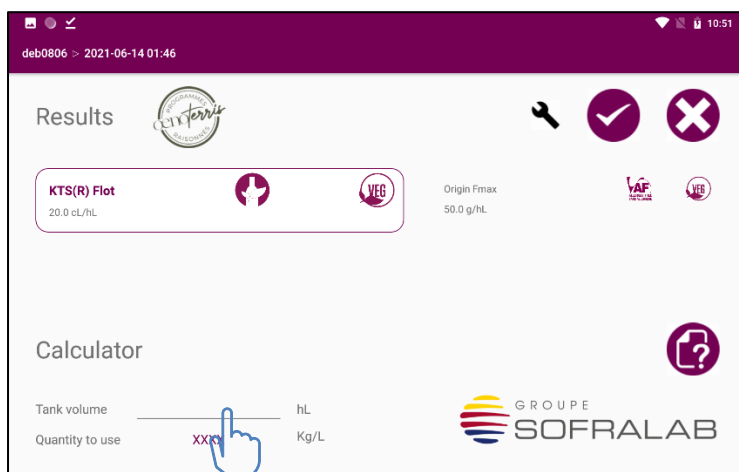


Displays the recommended fining agent and eventually an alternative.



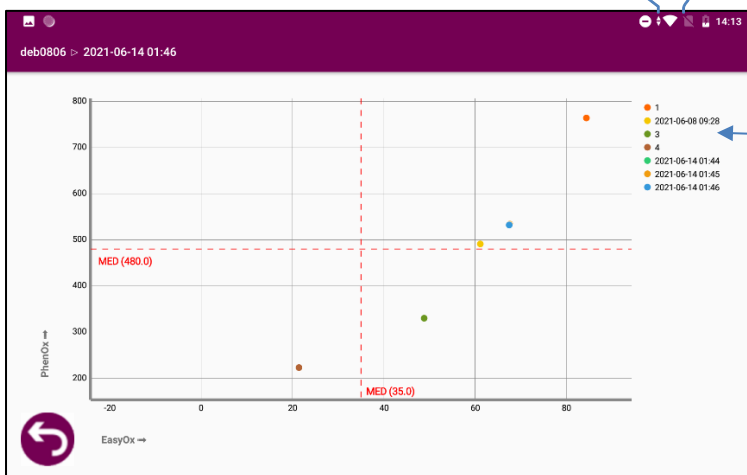
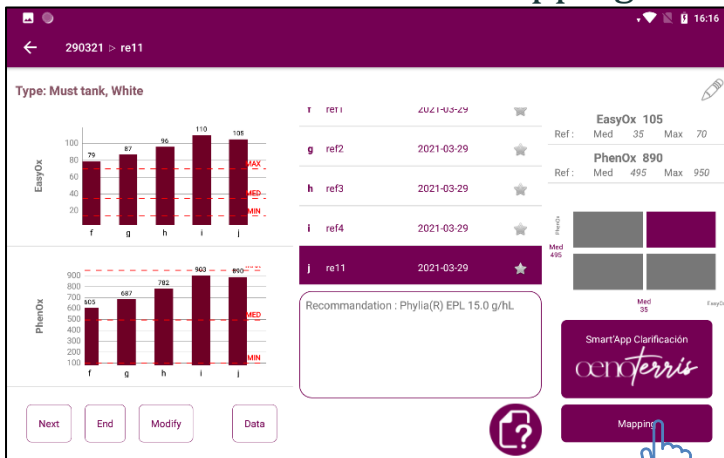
It is possible to access Fining Agent settings menu in order to modify the available fining agents.

Then the recommendation will be updated.

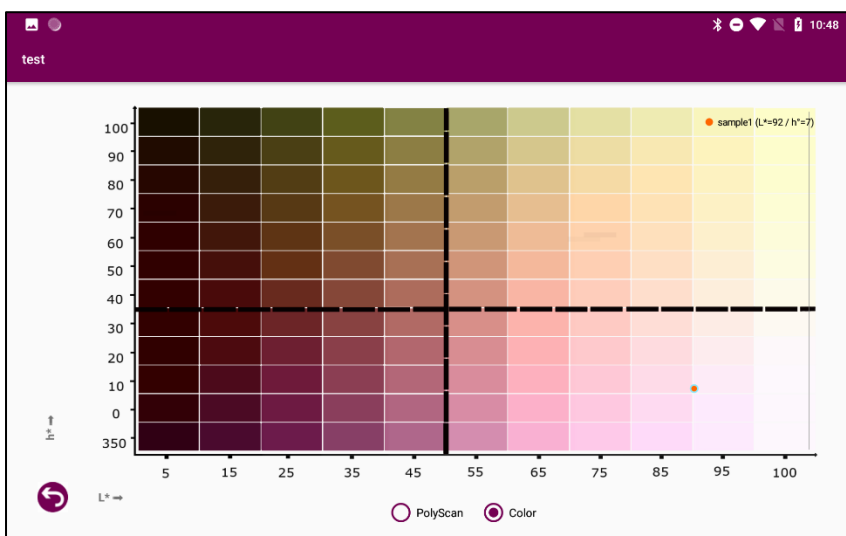


It is possible to type in the volume of the tank in order to know the quantity of fining agent to use.

4.3.3. Mapping of the series sample



Legend.

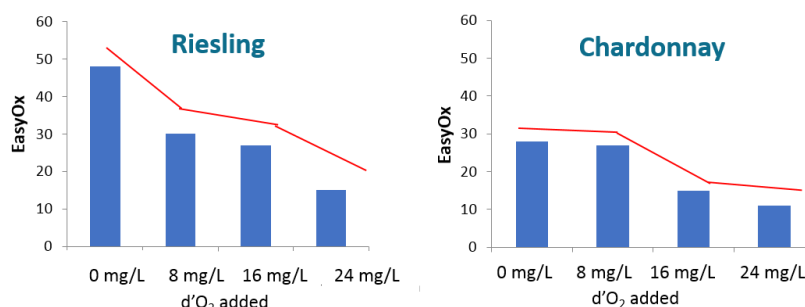


By pressing « Mapping », it is possible to display all the samples of the series in a chart PhenOx vs EasyOx and/or L*/h* in order to identify the samples with similar values and the position of each sample in relation to references values (median of EasyOx and PhenOx).

4.4. Must oxygenation

This analysis allows to follow the evolution of polyphenols during hyperoxygenation. To monitor the effect of O₂ supply on the must, it is important to take the samples from a place in the tank that is sufficiently representative of the mass of oxygenated must.

Example of successive oxygen addition on white juices => monitoring of EasyOx and/ or Phenox decrease



When a significant drop in the indexes is observed, a pop-up message appears on the screen recommending stopping O₂ intake.

L'échantillon sélectionné comme témoin est repéré par la le symbole (T), il est possible de choisir n'importe quel échantillon de la série comme témoin. Par défaut, le premier échantillon de la série est défini comme témoin.

4.5. Thermovinification

This analysis allows following the extraction of polyphenols from red juices during thermovinification. Different indices can be followed: EasyOx, PhenOx, TAN / ACN

Note: Measuring the temperature of the sample corrects its impact on the Polyscan measurement (cf. chapter 5).

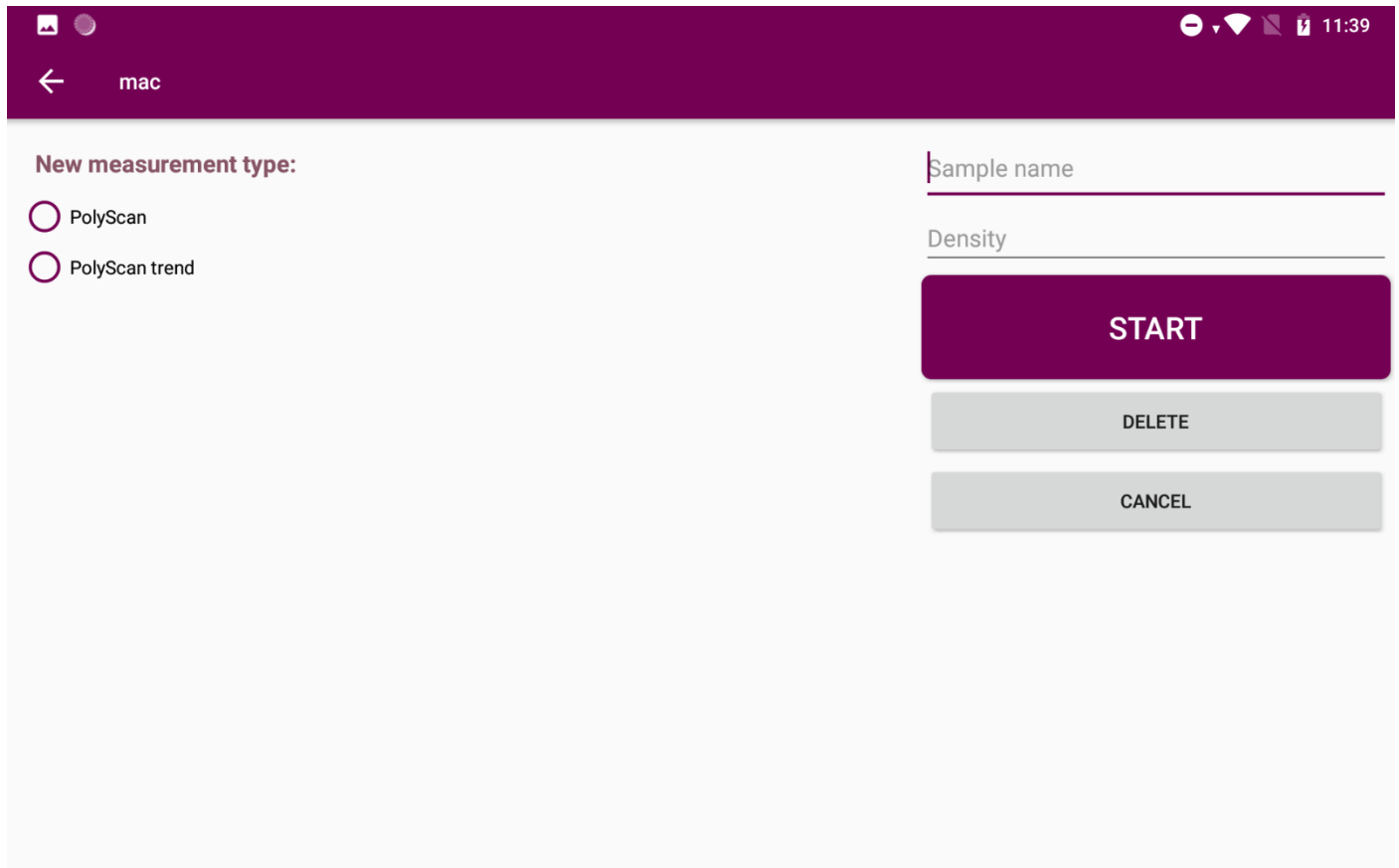
4.6. Pre-fermentative and fermentative maceration

For red wines only.

This analysis allows monitoring phenolic (PhenOx and TPI for red wines) evolution, easily oxidizable polyphenols (EasyOx) and T/A ratio during:

- Skin contact
- Cold or Hot pre-fermentative maceration,
- Traditional skin contact (red)

It also makes it possible to perform tendency of evolution measurements in the same series. PLEASE NOTE: the " tendency of evolution " type measurements must only be carried out when the alcoholic fermentation is complete and before raking off.



mac

New measurement type:

☐ PolyScan

☐ PolyScan trend

Sample name

Density

START

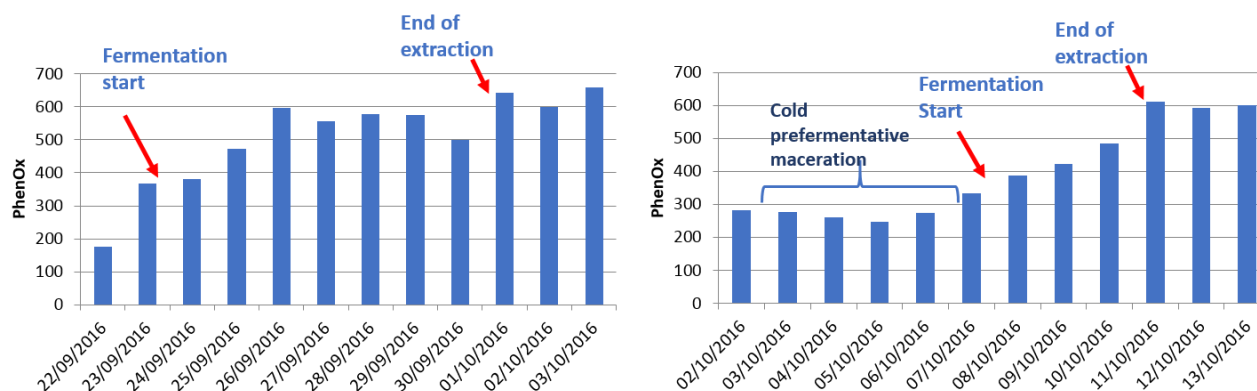
DELETE

CANCEL

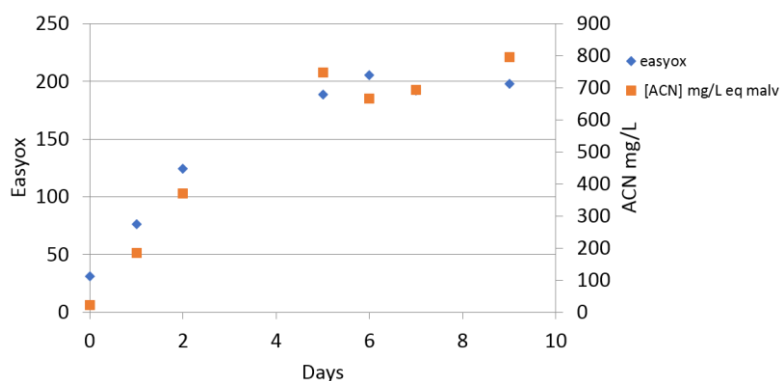
When launching a measurement, it is possible to choose a "Polyscan" type measurement, single measurement, or "Tendency of evolution" air resistance test with two measurements.

It is also possible to enter the density.

Example of PhenOx monitoring during a traditional red skin contact => end of extraction when highest polyphenolic content is reached



Example of EasyOx monitoring during a traditional skin contact on a tank of Syrah: => assess end of anthocyanin extraction



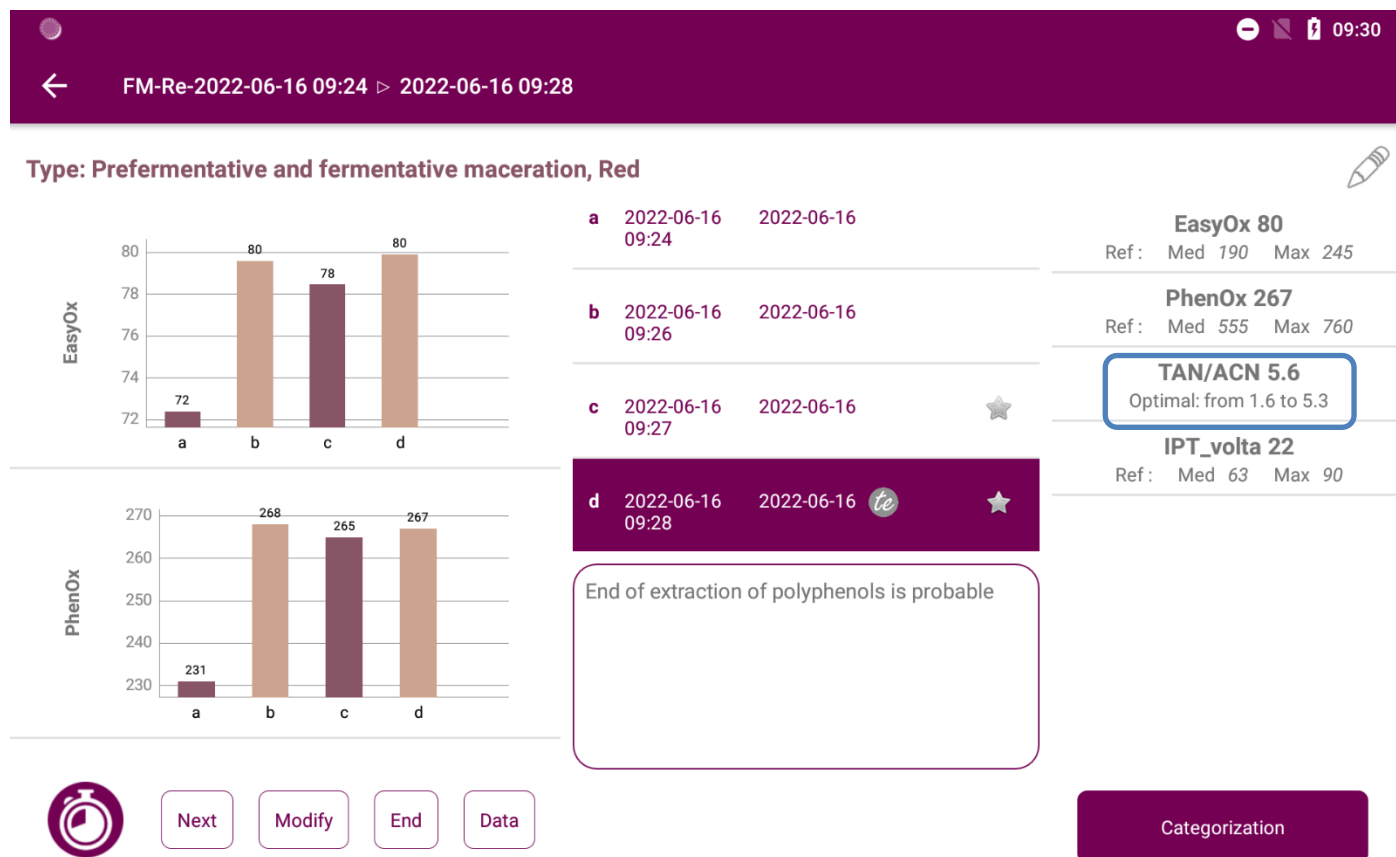
Evolution of EasyOx index gives the same profile as the evolution of anthocyanin concentration measured by the Puissant-Léon method

The T/A ratio of the tank is to be considered from mid alcoholic fermentation. If the tank is oxygenated under marc, an impact can be observed on the indices, consult us.

When the indexes reach a plateau, a pop-up message appears to indicate the probable end of the extraction.


Tan/Acn Ratio

Tan/Acn ratio is determined for each sample. However this ratio changes during fermentative maceration, most of the time increasing during maceration. A measurement when the density is between 1040-1020 is recommended to obtain a value related to the grape characteristic, on which the ageing strategy can be based. The most representative Tan/Acn ratio from the while series for the tank is displayed on the right of the screen



For this type of analysis, for each measurement, it is possible to enter the density either at the launch of measurement or by clicking on Modify (for the selected sample).

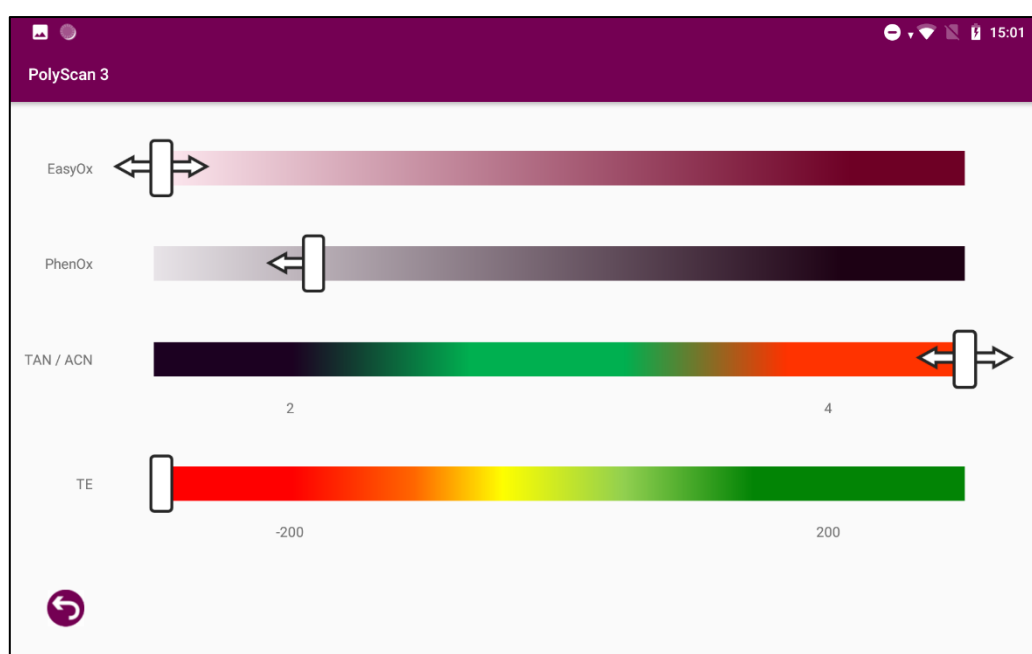
The icon allows access to the "tendency of evolution" type measurements pending in the series displayed. It is possible through this screen to know delay for the second measurement and to launch the second measurement when the 2 hours have elapsed.

FM-Re-2022-06-16 09:24 ▶ Pending measurements		
	Temps à attendre	TE
2022-06-16 09:28	118 min to wait	

↶

To perform "Tendency of evolution" type measurements, see paragraph: 3.11 Tendency of evolution

Pressing the "categorization" button displays a summary of the tank, value of the indexes compared to the references and evolution of the indexes.

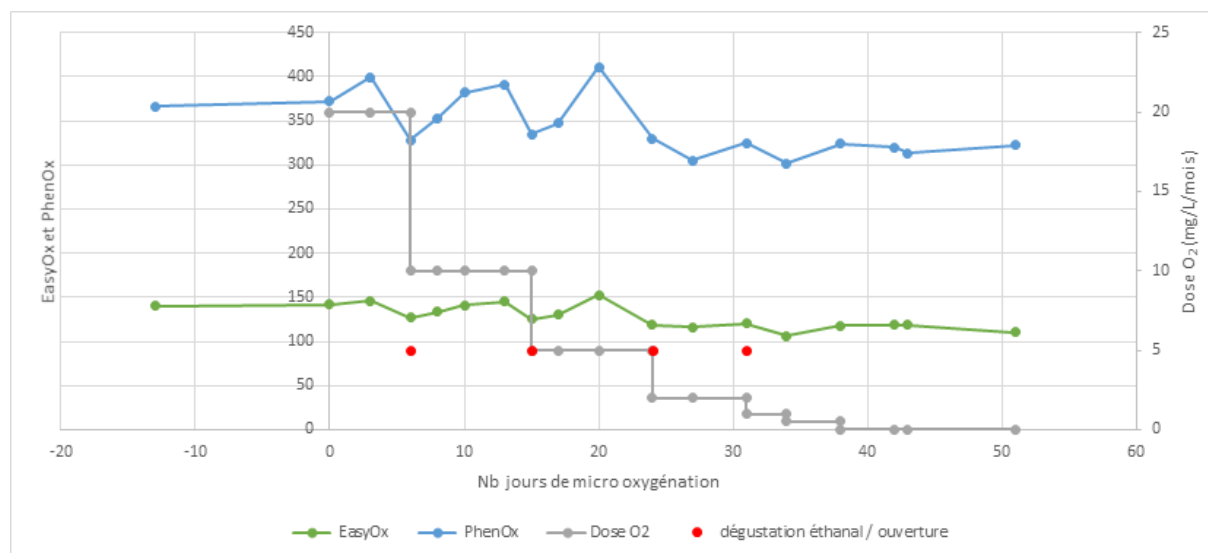


4.7. Microoxygenation / lees ageing

This analysis allows monitoring opening state (Aging State) evolution and easily oxidizable polyphenols (EasyOx) during micro-oxygenation and /or lees ageing.

It helps to make decision for controlling the dose between AF and MLF. Measurement must be done on the wine sampled at the same time of sampling wine for tasting it. The decrease of the EasyOx and /Ageing State indices comes simultaneously with the apparition of opening notes (ripe fruit, candied fruit, marmalade, chocolate) when tasting the wine. It helps making decision regarding injection flow decrease according to the chosen micro-oxygenation strategy.

Merlot from Languedoc 2018:

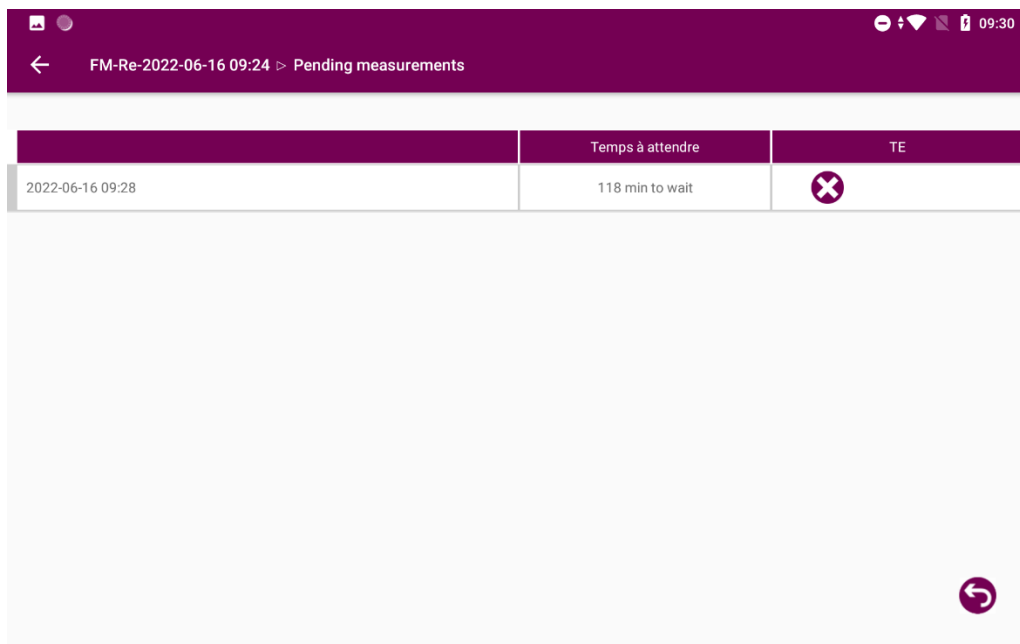


When a significant drop in the indices is observed, a pop-up message appears on the screen recommending stopping O₂ intake.

4.8. Ageing Strategy

Only "Tendency of Evolution" type measurements are available in this menu.

The results are presented in tabular form. The second measurement can be made from the table in the index cell of the sample when the 2 hour wait has elapsed.



The screenshot shows a mobile application interface with a purple header bar. The header contains a back arrow, the text "FM-Re-2022-06-16 09:24", and a right arrow followed by "Pending measurements". The status bar at the top right shows the time as 09:30. Below the header is a table with three columns: an empty column, "Temps à attendre", and "TE". The first row of the table has the value "2022-06-16 09:28" in the first column, "118 min to wait" in the second column, and a red circle with a white 'X' in the third column. A circular refresh button is located at the bottom right of the table area.

	Temps à attendre	TE
2022-06-16 09:28	118 min to wait	✕

The "mapping" button allows you to visually compare the samples in an Aging State / Tendency of evolution graph. To categorize the tanks and adapt the ageing, contact us.

4.9. Barrel Ageing

Tendency of evolution type only.

Monitoring of ageing in barrels. No decision rule in this menu. Allows to separate measurements on barrel from other in the database.

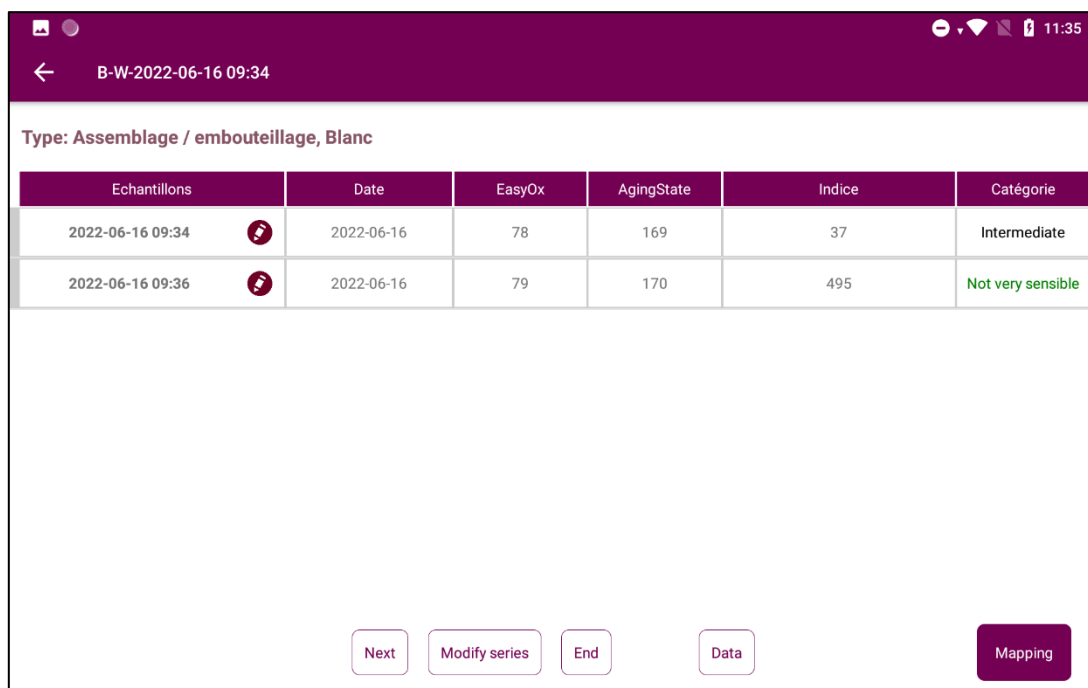
4.10. Blending/bottling

Tendency of evolution type only.

Pre-blending analysis (optimizing polyphenols and oxidizable compounds content of the finished wines)

Analysis after bottling.

4.11. Tendency of evolution test



The screenshot shows the WQS Polyscan app interface. At the top, there's a status bar with the time 11:35 and various icons. Below it, a header bar displays a back arrow and the text 'B-W-2022-06-16 09:34'. The main content area shows the 'Type: Assemblage / embouteillage, Blanc'. Below this is a table with two rows of data. The first row has a date of 2022-06-16 09:34, a date of 2022-06-16, EasyOx of 78, AgingState of 169, Indice of 37, and a category of 'Intermediate'. The second row has a date of 2022-06-16 09:36, a date of 2022-06-16, EasyOx of 79, AgingState of 170, Indice of 495, and a category of 'Not very sensible'. At the bottom of the screen, there are five buttons: 'Next', 'Modify series', 'End', 'Data', and 'Mapping'.

Echantillons	Date	EasyOx	AgingState	Indice	Catégorie
2022-06-16 09:34	2022-06-16	78	169	37	Intermediate
2022-06-16 09:36	2022-06-16	79	170	495	Not very sensible

The tendency of evolution test is available in the menus:

- Prefermentative and fermentative maceration
- Orientation end FA
- Barrel aging
- Blending/bottling

The Tendency of Evolution test allows determining if the wine is sensitive to oxidation at the time the test is performed.

Notes:

- SO₂ has no influence on the measurement result
- An "oxidized" wine can sometimes not oxidize further. It is therefore possible that the test no longer judges the wine "sensitive" simply because the oxidation mechanism is already advanced.
- The first measurement at T0 of the sample must be carried out immediately after the wine has been sampled, without waiting for the wine to get into contact with air.

Protocol to follow:

- Choose the menu "Ageing strategy", "Prefermentative and Fermentative maceration*", "Barrel Ageing" or "Blending/Bottling". (* select the type of measurement "Tendency of evolution")

- Fill in the color, the grape variety, the name of the series, the name of the sample
- Insert the strip

1st measurement T0:

A/ In case of sampling from a tank or a barrel:

- Sample directly 50 mL from the tank or the barrel, carefully, in a 125 mL flask with septum, taking care not to oxygenate the wine,



- Put one drop of wine on the electrode immediately after sampling
- Click on « Start », then click again on « Start ».

- Close the flask with the septum. Do not stir.

B/ In case of sampling from a bottle

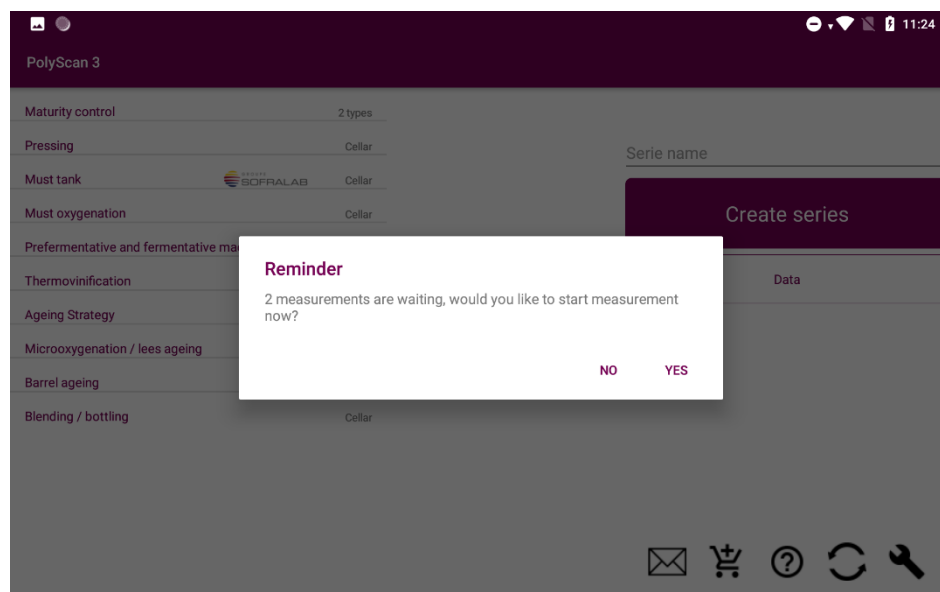
- Sample one drop of wine and put it on the electrode immediately after opening the bottle
- Click on « Start », then click again on « Start ».
- Sample 50 mL of wine from the bottle with cautions (without oxygenating) in a 125 mL flask with septum.



- Close the flask with the septum. Do not stir.

2nd measurement T2h

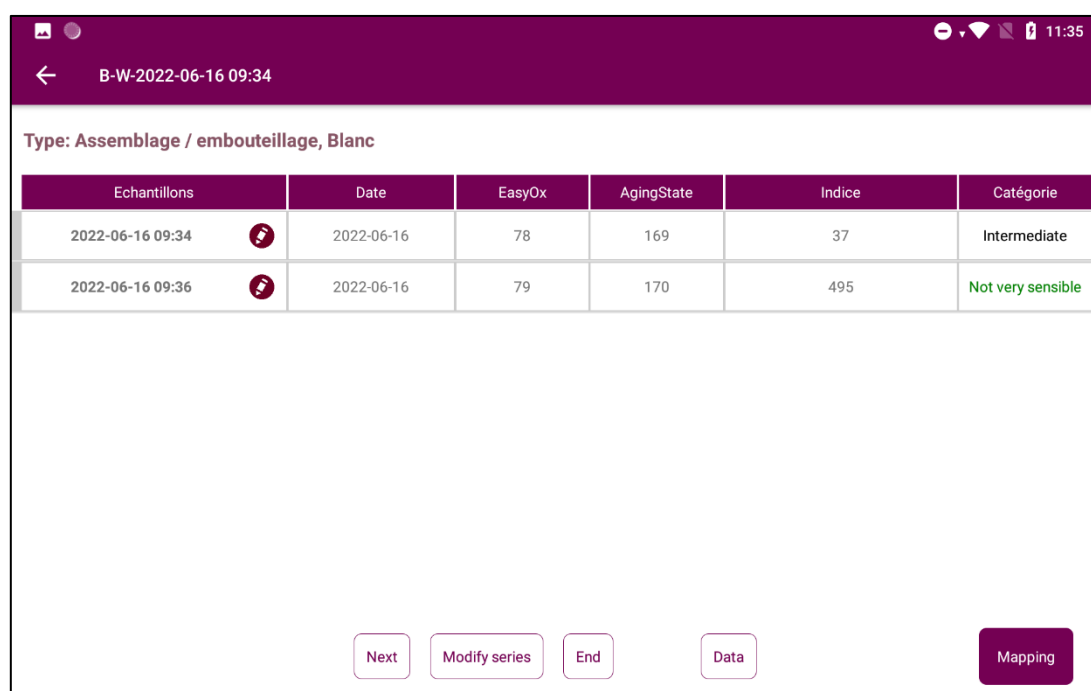
- Leave the 50 mL of sample in the closed bottle at the temperature at which the wine was (in the cellar for example) for 2 hours. A countdown is present on the Polyscan results screen to indicate the time remaining before performing the 2nd measurement.
- 2 hours after the first measurement, return to the Polyscan home screen. A reminder message appears indicating the pending measurements and allowing you to perform the 2nd measurement. Or go to the "Series" containing the measurements to be completed via the "Data" menu.



- Redo an electrochemical analysis (T 2h) by taking a drop of wine from the vial of the sample to be analysed.

Results :

The Polyscan indicates the wine category: sensitive or not very sensitive, as well as the EasyOx and Aging State values of the initial sample. These values complete the analysis: if they are particularly low, it is possible that the sample is already oxidized



The screenshot shows a mobile application interface with a purple header bar. The header contains a back arrow, the text "B-W-2022-06-16 09:34", and status icons for battery, Wi-Fi, and signal, along with the time "11:35". Below the header, the text "Type: Assemblage / embouteillage, Blanc" is displayed. A table with six columns follows: "Echantillons", "Date", "EasyOx", "AgingState", "Indice", and "Catégorie". The table contains two rows of data. The first row shows a sample from 2022-06-16 09:34 with EasyOx 78, AgingState 169, Indice 37, and category "Intermediate". The second row shows a sample from 2022-06-16 09:36 with EasyOx 79, AgingState 170, Indice 495, and category "Not very sensible". At the bottom of the screen, there are five buttons: "Next", "Modify series", "End", "Data", and "Mapping".

Echantillons	Date	EasyOx	AgingState	Indice	Catégorie
2022-06-16 09:34	2022-06-16	78	169	37	Intermediate
2022-06-16 09:36	2022-06-16	79	170	495	Not very sensible

For further information, contact the WQS team (winequalitysolutions@vinventions.com)

5. Data

This function allows displaying the list of measurement series that was performed.


The screenshot shows a mobile application interface titled "Samples list". It features a search bar at the top and a list of three measurement series. Red arrows point from external labels to specific elements in the app:

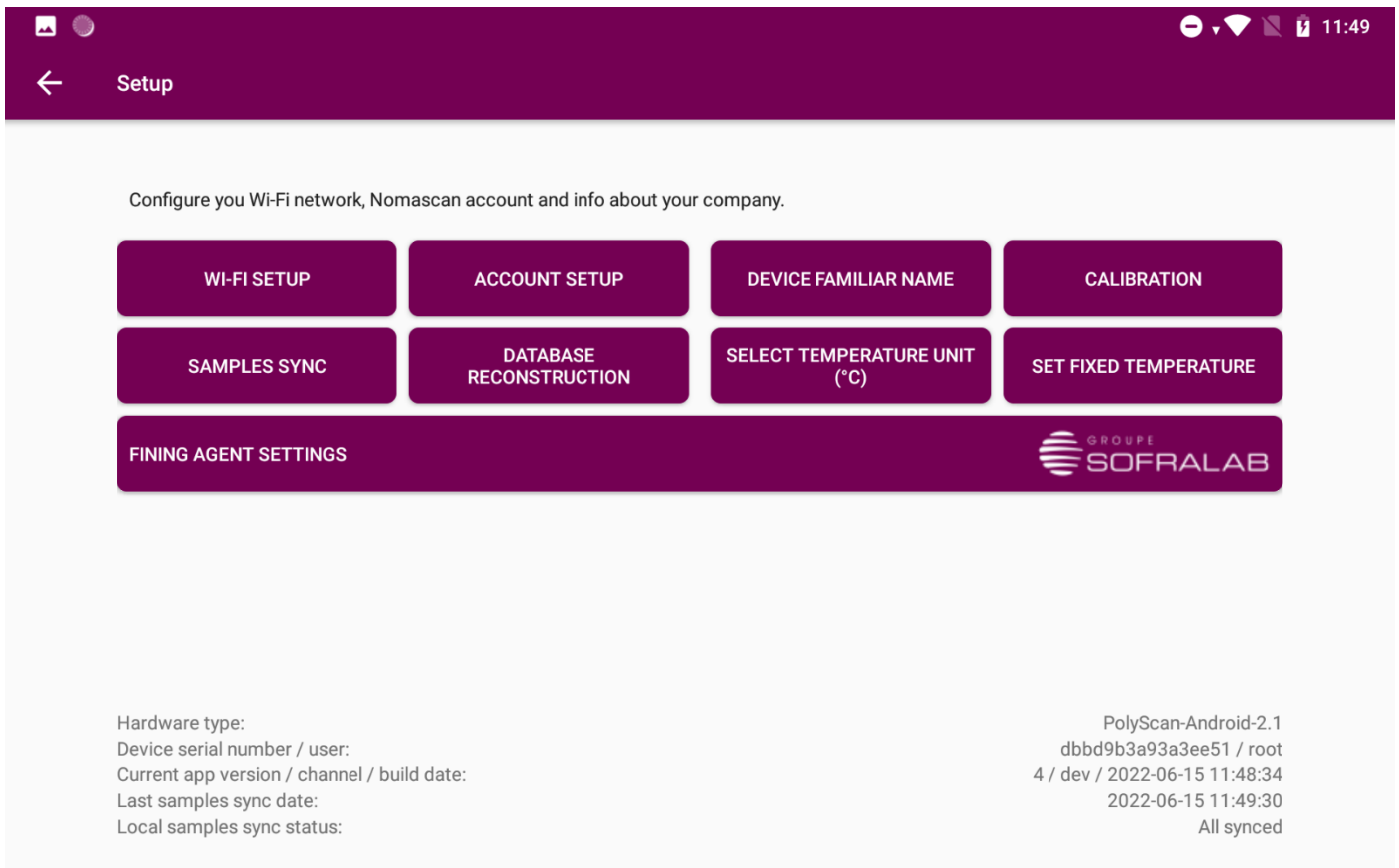
- Analysis type** points to the "Barrel ageing" series name.
- Sample color** points to the "Red" color label under the "Barrel ageing" series.
- Bold text : Series name** points to the bolded date and time "E-Rg-2018-09-05 10:49".
- Date of the last series' measurement done** points to the date "2017-12-06" under the "suivi maceration" series.

Series Name	Color	Date and Time
Barrel ageing	Red	E-Rg-2018-09-05 10:49 2018-09-05
Blending / bottling	Red	AE-Rg-2018-09-05 10:48 2018-09-05
Prefermentative and fermentative maceration	Syrah Red	suivi maceration 2017-12-06

Click on the measurement series to consult, the results screen displays. To edit or delete a series or data, see chapter 2.

6. Configuring the Polyscan

Go on Settings: click on  (flat key logo)
The different settings appear on the screen.



6.1. WI-FI setup

- Click on WI-FI SETUP
- Select your WI-FI network
- Enter your WI-FI password

The Polyscan communicates with the domain <https://vinventions.enologyportal.wqs.wine/> communications to this domain must be authorized by your network administrator if your network has a proxy.

6.2. Account Setup

The device is previously configured by the WQS teams. If this is not the case, a message will be sent to you. Proceed as follows:

www.vinventions.com

- Click on ACCOUNT SETUP
- Enter your Login ID and your password - this one has been sent to you by email
- Click on SIGN IN

6.3. Application Update

Application updates are released when bugs are fixed or new features have been developed. **We strongly advise to install them.**

When an update is available and the Polyscan is connected to the Wi-Fi, a pop-up message appears to download the new version of the application.

- Download the new version of the application
- Then click on **INSTALL**

Installing a new application version without prior uninstallation is sufficient and does not cause data loss.

Warning: if you uninstall the app without first synchronizing, unsynchronized data will be lost permanently.

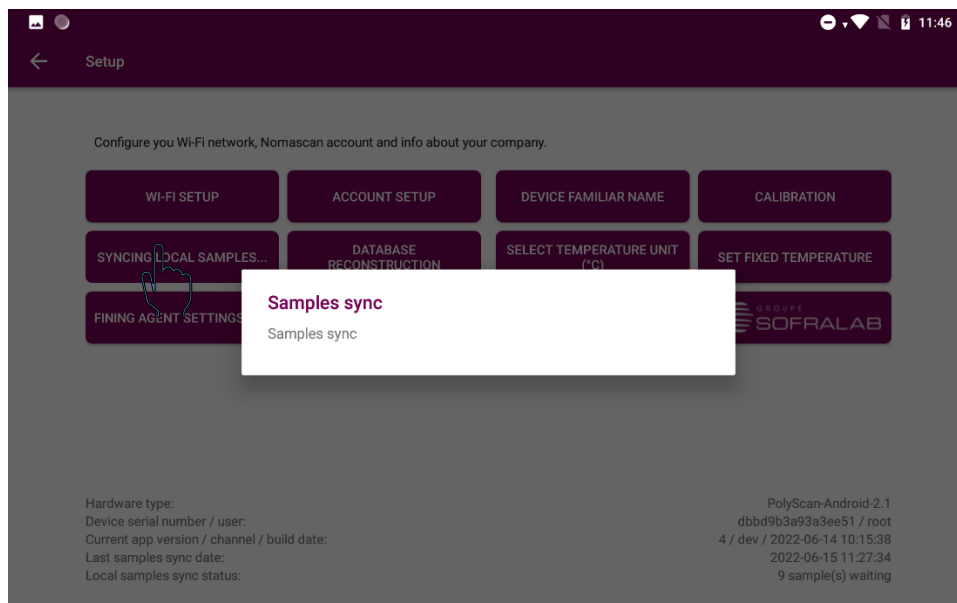
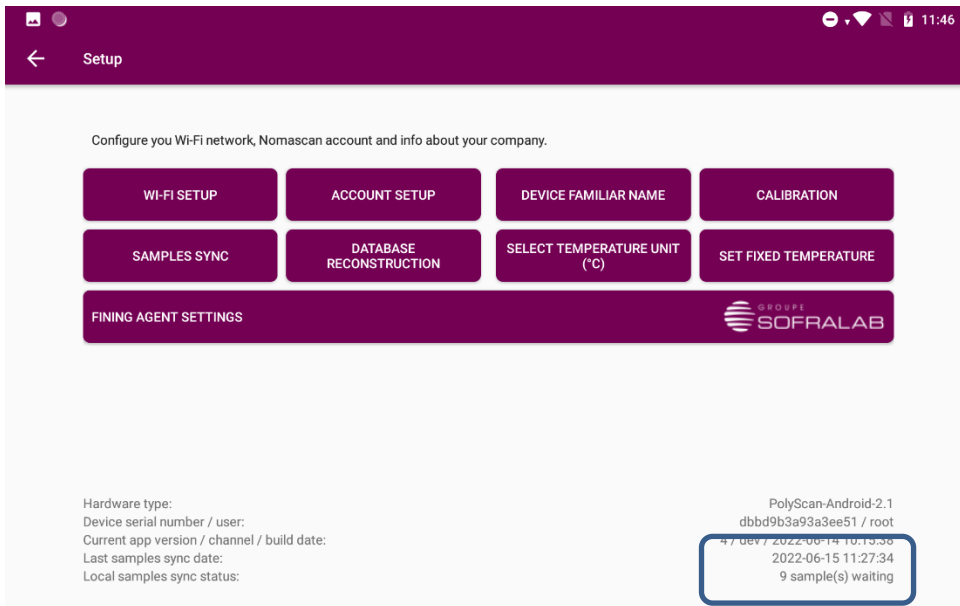
7. Settings

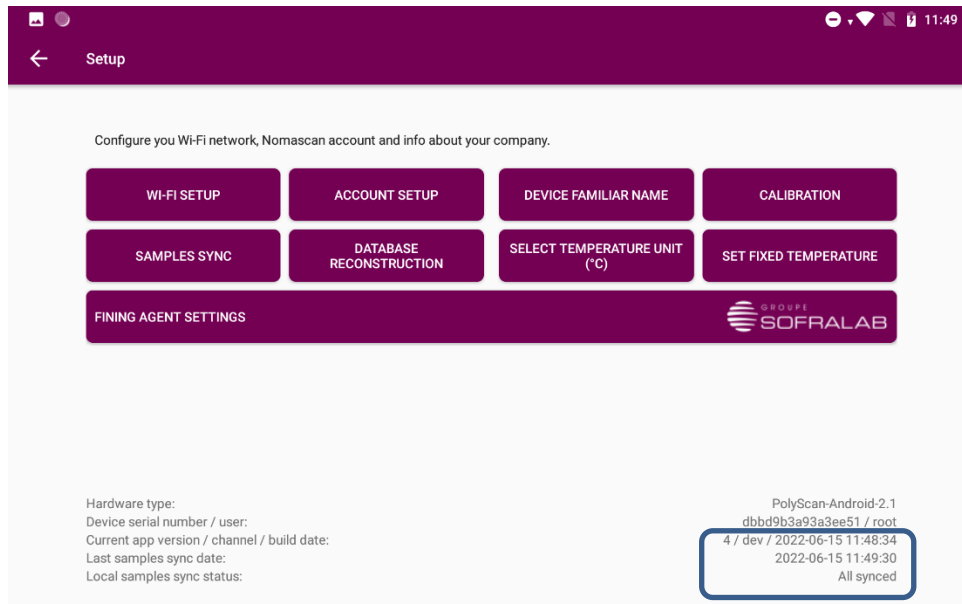
7.1. Force local sample sync

The Polyscan automatically backs up data on the web interface when there is a Wi-Fi connection.

If you cannot find your recent measurements in the web interface, click on "Force local samples sync" button in the Settings menu to manually synchronize the analyzer's data on the web interface.

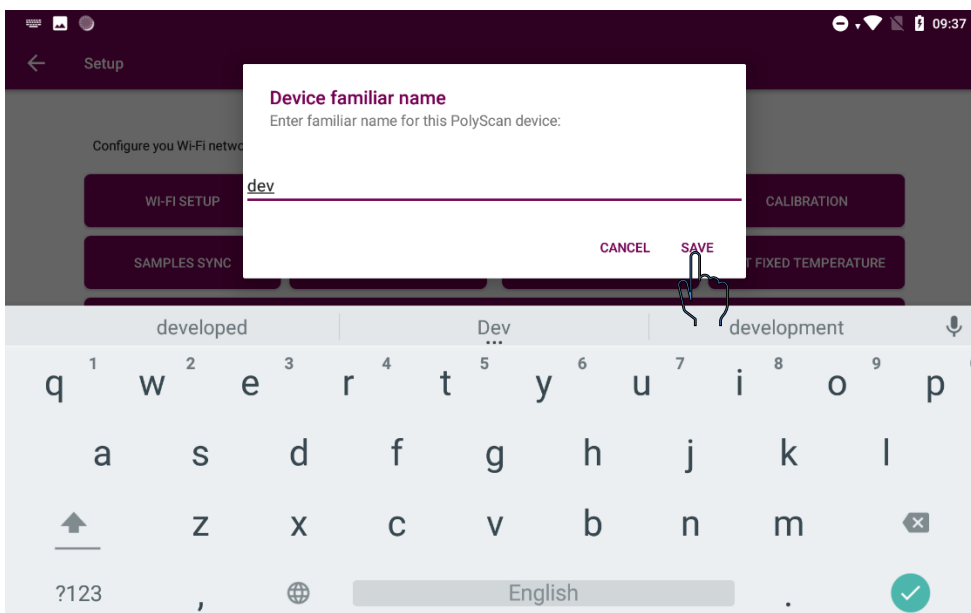
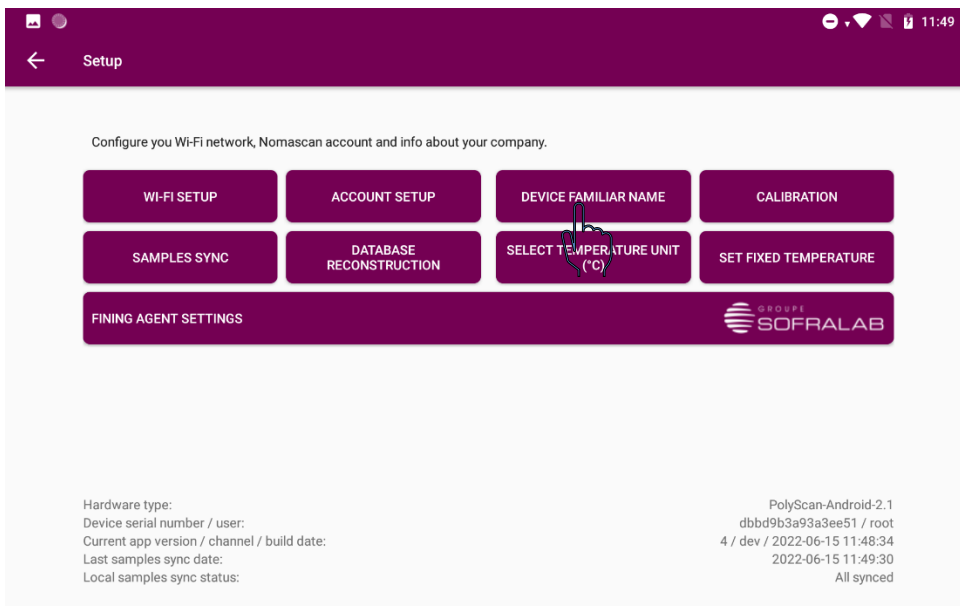
It is possible to check if samples have not been synchronized.



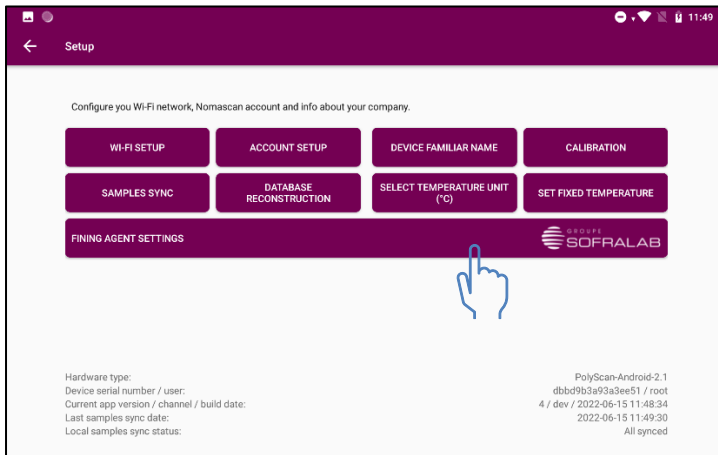


7.2. Device Familiar name

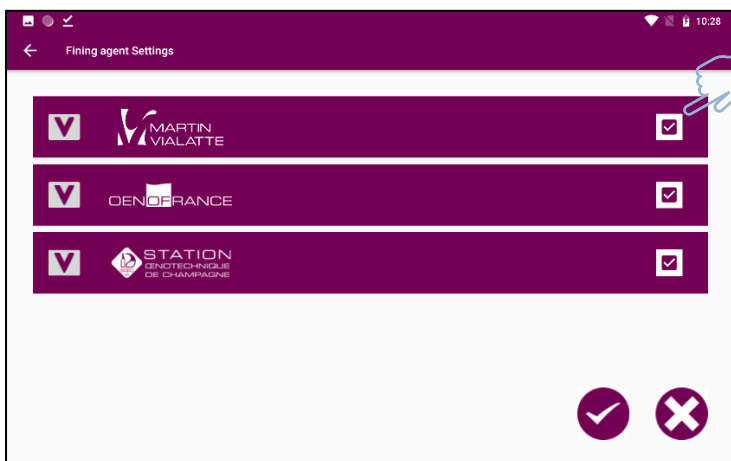
In case you use several devices, it is possible to define a "name" for each device, this name appears in the export files.



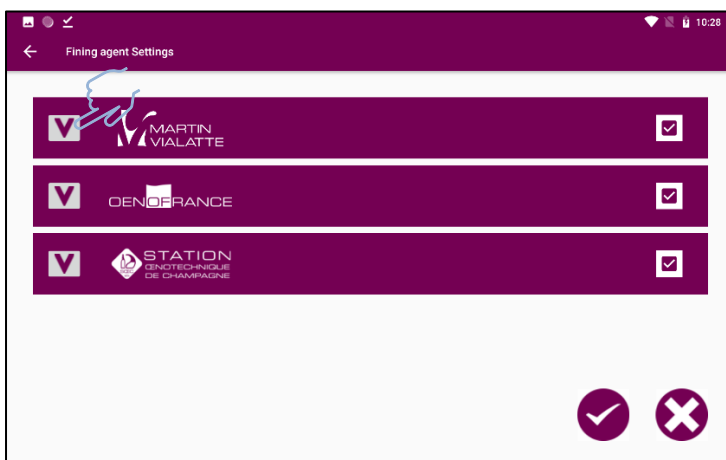
7.3. Fining agent settings



Click on « Fining agent settings »



In this menu, it is possible to select / unselect available fining agents to restrict recommendations to available fining agents. By clicking on the checkbox in front of the brands, it is possible to select / unselect all the fining agents of a brand.



By clicking on the arrow, it is possible to view all the fining agents of a brand and to make them available / unavailable individually.



Information is displayed for each fining agent :



Organic



Vegan



Allergen free



NOP



Brands accessible for each customer can be restricted according to market availability.

7.4. Calibration

This function is reserved for WQS specialist

No calibration is required for the use of the Polyscan or electrodes as both are pre-calibrated from the factory.

If you have questions about calibration, please contact the WQS team (winequalitysolutions@vinventions.com)

8. Troubleshooting

Error	Causes	Corrective actions
NomaScan synchronization impossible	No Wifi network	Put your analyzer in a WIFI network zone Or Enter the WIFI key into the Polyscan application as described in section 5.1 or Reconnect the tablet to WiFi (if inactivated in tablet setting)
	Wrong setting of the tablet date and time (sometimes due to the complete battery discharge or device turned on again without access to WIFI)	Set the date and time in tablet setting

WQS

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