Vanta Family
X-Ray Fluorescence Analyzer

User Interface Guide

Software Version 4.x.xx

10-040361-01EN — Rev. 2
September 2024

This instruction manual contains essential information on how to use this Evident product safely and effectively. Before using this product, thoroughly review this instruction manual. Use the product as instructed.

Keep this instruction manual in a safe, accessible location.

EVIDENT SCIENTIFIC, INC., 48 Woerd Avenue, Waltham, MA 02453, USA

This document was prepared with particular attention to usage to ensure the accuracy of the information contained therein, and corresponds to the version of the product manufactured prior to the date appearing on the title page. There could, however, be some differences between the manual and the product if the product was modified thereafter.

The information contained in this document is subject to change without notice.

Software Version 4.6x.xx
10-040361-01EN
Rev. 2
September 2024

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List of Abbreviations

EAC	Eurasian Conformity
GPS	global positioning system
LAN	local area network
LE	light element
LOD	limit of detection
PMI	positive materials identification
RoHS	restriction of hazardous substances
USB	universal serial bus

Important Information — Please Read Before Use

Intended Use

The Vanta is designed to perform identification and analysis of elements from magnesium to uranium (Mg to U), depending on the selected model, contained within test samples.

WARNING

Do not use the Vanta for any purpose other than its intended use. It must never be used to inspect or examine human or animal body parts.

Instruction Manual

This instruction manual contains essential information on how to use this product safely and effectively. Before using this product, thoroughly review this instruction manual. Use the product as instructed.

Keep this instruction manual in a safe, accessible location.

Safety Symbols

The following safety symbols might appear on the instrument and in the instruction manual:


General warning symbol

This symbol is used to alert the user to potential hazards. All safety messages that follow this symbol shall be obeyed to avoid possible harm or material damage.

Safety Signal Words

The following safety signal words might appear in the documentation of the instrument:


WARNING

The WARNING signal word indicates a potentially hazardous situation. It calls attention to a procedure, practice, or the like that if not correctly performed or adhered to could result in death or serious personal injury. Do not proceed beyond a WARNING signal word until the indicated conditions are fully understood and met.


CAUTION

The CAUTION signal word indicates a potentially hazardous situation. It calls attention to a procedure, practice, or the like that if not correctly performed or adhered to may result in minor or moderate personal injury, material damage, particularly to the product, destruction of part or all of the product, or loss of data. Do not proceed beyond a CAUTION signal word until the indicated conditions are fully understood and met.

Note Signal Words

The following note signal words could appear in the documentation of the instrument:

IMPORTANT

The IMPORTANT signal word calls attention to a note that provides information that is important or essential to the completion of a task.

NOTE

The NOTE signal word calls attention to an operating procedure, practice, or the like, that requires special attention. A note also denotes related parenthetical information that is useful, but not imperative.

TIP

The TIP signal word calls attention to a type of note that helps you apply the techniques and procedures described in the manual to your specific needs, or that provides hints on how to effectively use the capabilities of the product.

Technical Support

Evident is firmly committed to providing the highest level of customer service and product support. If you experience any difficulties when using our product, or if it fails to operate as described in the documentation, first consult the user's manual, and then, if you are still in need of assistance, contact our After-Sales Service. To locate the nearest service center, visit https://EvidentScientific.com/service-and-support/service-centers/.

Introduction

The Vanta user interface (UI) is an intuitive way to control the Vanta XRF analyzer and manage the collected data. In a manner similar to using a smart phone or tablet, the user makes gestures on a touch screen interface.

This guide describes the controls that exist on all of the Vanta models running the 4.x.xx software. The controls that appear in your UI depend on the methods that are calibrated and the chosen configuration on your Vanta. Only a subset of all possible Vanta controls appear in any given instrument UI.

1. User Interface Overview

This section describes the Vanta analyzer user Interface (UI).

1.1 Gestures

The gestures you use to operate the UI are flick, swipe, tap, drag, and tap and hold.

- Flicking is the contact gesture of quickly moving one or more fingers to skip through content on the screen.
- Swiping is the contact gesture of using one or more fingers to move from object to object (or screen to screen).
- Tap means to press the screen with a finger and then to quickly lift it from the screen.
- Drag means to press the screen with a finger and then move it across the screen.
- Tap and hold means to press the screen with a finger and hold it there until a specific interaction is achieved.

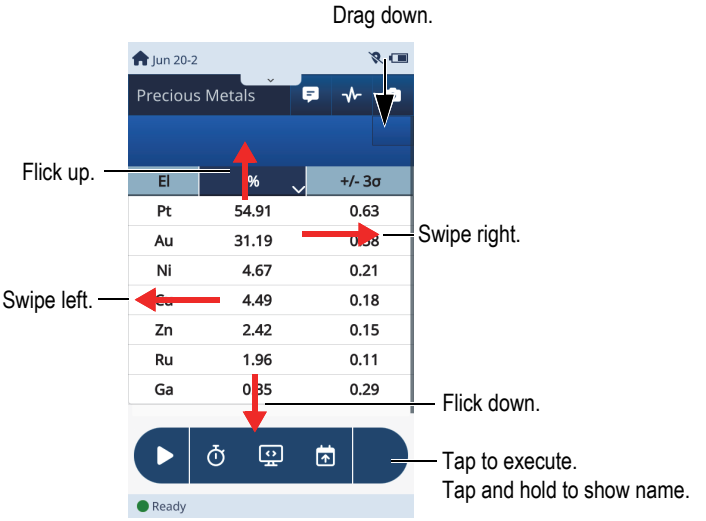

Figure 1-1 Gestures

1.2 Live View

Live View is the screen where testing is initiated and test results are displayed. The live view consists of the following screen elements (see Figure 1-2 on page 17):

- Status icons
- Tabs
- Results area
- Start button
- Favorites
- Status bar

Figure 1-2 Vanta user interface layout

1.2.1 Status Icons

The status icons indicate the status of system memory, the battery, Bluetooth®, and Wireless LAN (Local Area Network).

NOTE

A Bluetooth® adaptor is required for Bluetooth® to function. A Wireless LAN adaptor is required for the Wireless LAN to function.

1.2.2 Tabs Area

Select from Results display, Notes, Spectrum display, and Camera View.

1.2.3 Results Area

The Results area is where you view current test data, historical results, notes, images, and change settings and parameters.

The tabs can include the following:

- Elemental results (see “Viewing Elemental Results” on page 107)
- Spectrum results (see “Viewing the Spectrum Graph” on page 108)
- Notes (see “Notes” on page 44)
- Images (see “Cameras” on page 137).

1.2.4 Start Button

The Start button starts a test when you tap it. After a test begins, the Start button changes to a Stop button.

1.2.5 Favorites

The favorites are three buttons that aid in testing (see example of default Alloy Plus favorites in Figure 1-3 on page 18). A tap on a favorite button eliminates the need to pull down the menu bar, and then tap the identical button there. Buttons can be selected as favorites using the Vanta PC software (Refer to the *Vanta PC Software User Interface Guide*). Each method can be set up to have its own selection of favorite buttons.

Figure 1-3 Live View favorites example

1.2.6 Status Bar

The Status Bar displays the status of the hardware and also system messages.

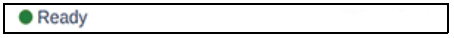

Figure 1-4 Status bar

1.3 Menu Bar

The menu bar is where you select the Menu Tray (see Figure 1-5 on page 19).

NOTE

Live View is the default screen, and is always displayed unless you use the menu bar to choose the Menu Tray.

To use the menu bar

Swipe down anywhere on the menu bar to open the Menu Tray.

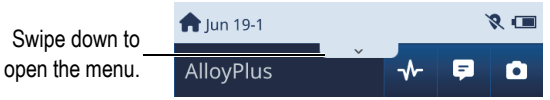

Figure 1-5 Menu bar

1.4 Menu Tray

The Menu Tray contains buttons that select a method (of analysis), set test parameters related to that method, or control certain capabilities of the hardware (see Figure 1-6 on page 20).

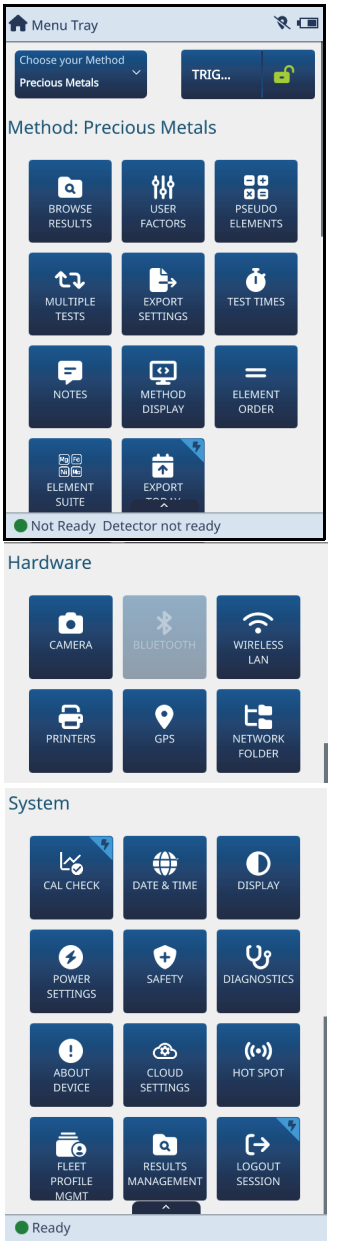

Figure 1-6 Menu Tray Options

There are two types of buttons:

- Action
- New screen

An action button causes an action to immediately occur. An action button is identified by a lighter blue corner with a lightning bolt, with the only exception being the icon for the trigger lock (see Figure 1-7 on page 21).

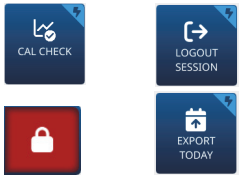

Figure 1-7 Typical action buttons

A new screen button causes a new screen to be opened.

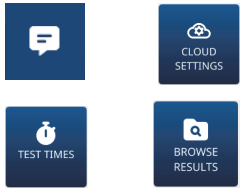

Figure 1-8 Typical new screen buttons

NOTE

Both types of buttons (action and new screen) can also appear in the **Live View Favorites** box (see "Favorites" on page 18).

To return to Live View

- From the **Menu Tray**, drag up the tab at the bottom middle of the screen.

2. Test Setup

This section explains how to set up the Vanta analyzer to test using a selected method. A method is a collection of settings and algorithms to optimize the analyzer for a specific application. So a method name identifies an application or range of applications where the method is used for analysis.

The available methods are as follows:

- Alloy
- Alloy Plus
- Car Catalyst
- Coating
- GeoChem (1)
- GeoChem (2)
- Hot Alloy Plus
- Precious Metals
- RoHS
- RoHS Plus
- Soil

2.1 Common Method Setup Procedures

Some method setup procedures are common, with a few variations, to all methods. These common setup procedures are covered in this section.

2.1.1 Select Method

The **Select Method** button opens a screen where you can select a method from a dropdown list. Only the methods calibrated on your Vanta analyzer appear in the list.

To select a method

1. Tap the **Select Method** button (

) from the Menu Tray.
2. On the **Select Method** screen, select a method (see Figure 2-1 on page 24).

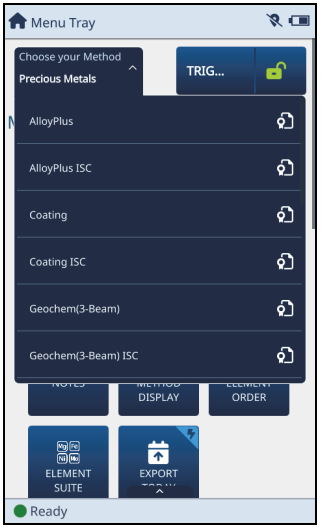

Figure 2-1 Select Method screen

2.1.2 Test Times

The Test Times button opens a screen where you can specify the amount of time that a test will take. This is determined by the minimum and maximum number of seconds that the X-ray beam is active. X-ray tubes generate one beam at a time, so when multiple beams are specified, they are sequential. The test times you enter depend on the degree of precision required. Longer test times increase precision.

To set the test times

NOTE

When setting the test times, make sure the durations are shorter than the power profiles on the **Power Settings** screen (see "Power Settings" on page 126). Otherwise, the test ends when the screen shuts off.

1. Tap the **Test Times** button ( ) [either in the Menu Tray or on the **Live View** screen, if available].
2. Tap a **Min** or **Max** box to highlight it, and then enter a test time (see Figure 2-2 on page 25).
   - **Min** is the minimum testing time before test results are actually calculated and displayed. This value can be set to zero.
   - **Max** is the total length of time a test runs.

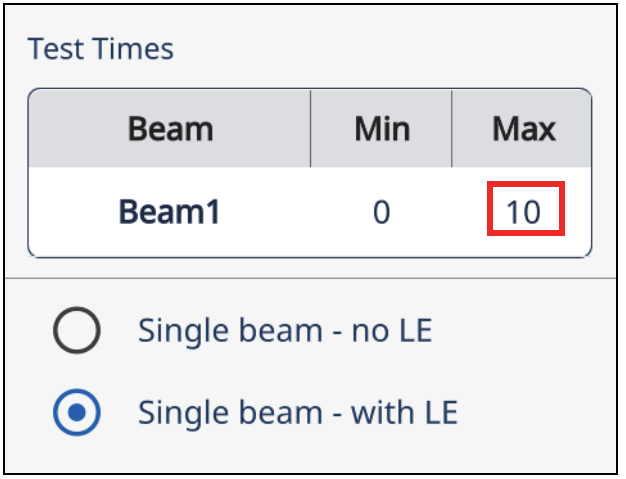

Figure 2-2 Max value on the Test Times screen

2.1.3 Multiple Tests

You can run multiple tests in a variety of ways. You can repeat a single test multiple times. You can program the Vanta analyzer to calculate the average of the repeated series of tests. You can also program the Vanta analyzer to run multiple tests according to a script in batch mode.

2.1.3.1 Repeating a Test

You can repeat a test multiple times. You can also insert a pause between tests to display a confirmation message before each test.

To repeat a test

1. Tap the **Multiple Tests** button (MULTIPLE TESTS) in the Menu Tray.
2. If **None** is highlighted, tap to reveal the **Multiple Tests** menu (see Figure 2-3 on page 26).
3. Tap **Repeat Tests**.

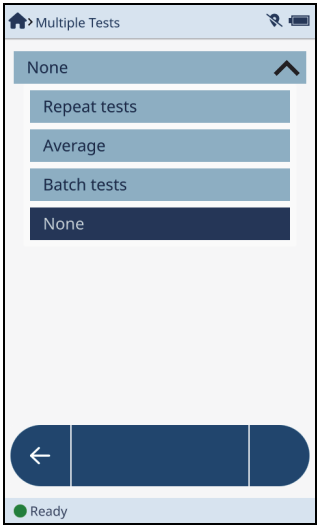

Figure 2-3 Selecting the Repeat Tests option

4. Tap the **Number of Tests** box and enter the number of times you want to repeat the test (see Figure 2-4 on page 27).

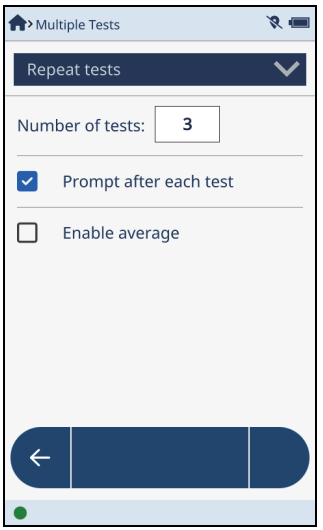

Figure 2-4 Repeat Tests setup

5. Dismiss the virtual keypad.

To insert a pause between each test

- On the **Multiple Tests** screen, select the **Prompt After Each Test** check-box (see Figure 2-4 on page 27).

  In **Live View**, the **Repeat Test** dialog box displays after each test, prompting you to press **Start** before the next test is run (see Figure 2-5 on page 27).

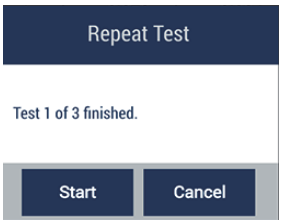

Figure 2-5 Live View — Repeat Test dialog box

2.1.3.2 Enabling a Batch Test

Batch testing enables you to automate the running of a series of tests. The batch script is set up in the Vanta PC Software and then deployed to the instrument.

To enable a batch test

1. On the **Multiple Tests** screen, select **Batch Test** (see Figure 2-7 on page 29).

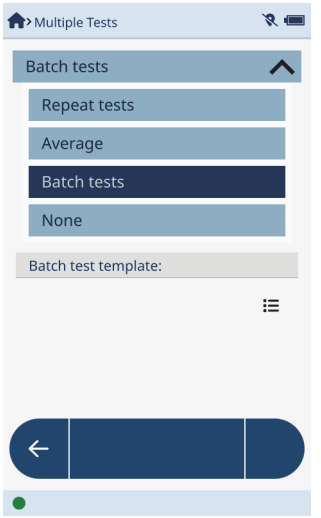

Figure 2-6 Batch Tests option

2. Tap the **Template** list button (☰) to reveal the available batch templates (see Figure 2-7 on page 29).
3. Tap a template to select it.
   In **Live View**, the test(s) will run according to the instructions in the batch script.

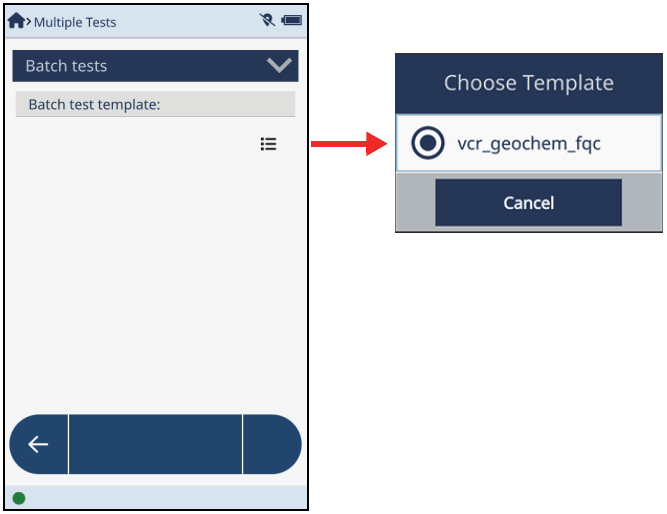

Figure 2-7 Batch Test templates

2.1.3.3 Averaging Test Results

This feature calculates the average of multiple test results and presents those results in **Live View** (see Figure 2-8 on page 30).

In the Alloy modes, the averaged results do not present any grade comparison information, as no grade calculations based on grade libraries are made.

When using the Average feature, you have the choice of the following actions:

- Automatically running and averaging a preset number of tests
- Manually running a preset number of tests (the tests are then automatically averaged)
- Manually running any number of tests, and then averaging all of the tests
- Manually running any number of tests, and then averaging selected tests

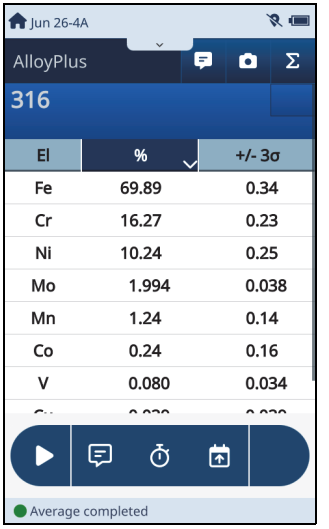

Figure 2-8 Live View — Averaged results

To enable averaging

1. In the menu on the **Multiple Tests** screen, tap **Repeat Tests** (see Figure 2-9 on page 31).
2. Tap **Enable Average**.

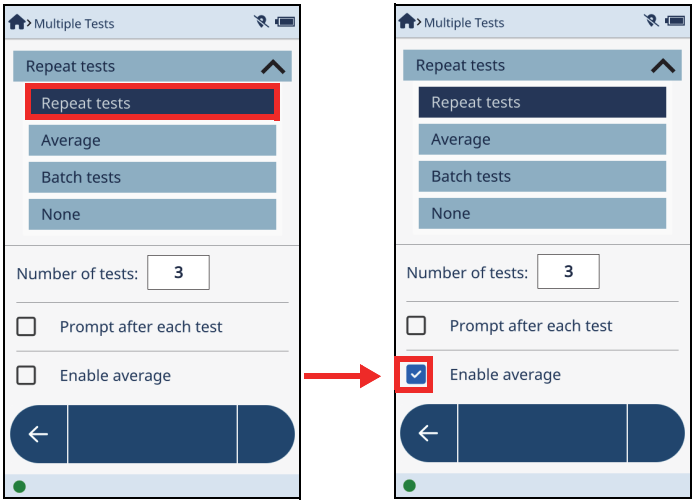

Figure 2-9 Enabling Averaging in Multiple Test screen

3. In the menu on the **Multiple Tests** screen, tap the **Average** to display the available averaging options (see Figure 2-10 on page 31).

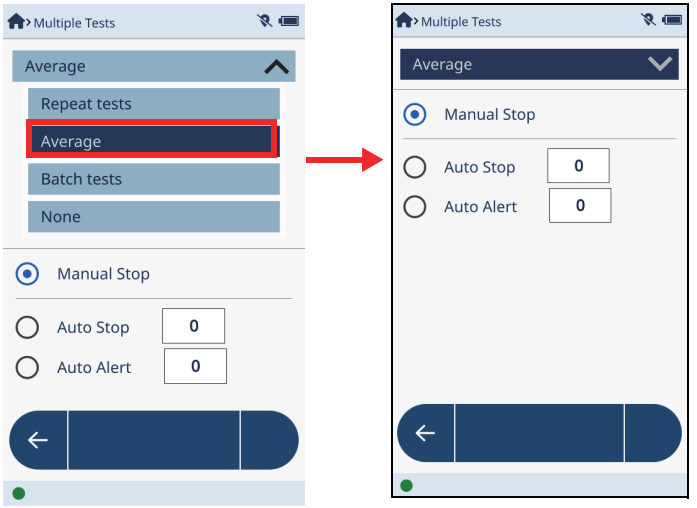

Figure 2-10 Averaging dialog box (right)

To automatically run and average tests

1. In the **Average** dialog box, tap the **Auto Stop** button (see Figure 2-11 on page 32).
2. Tap the **Auto Stop** box, and enter a value.
3. Dismiss the virtual keypad, and then tap the Back button ( ).

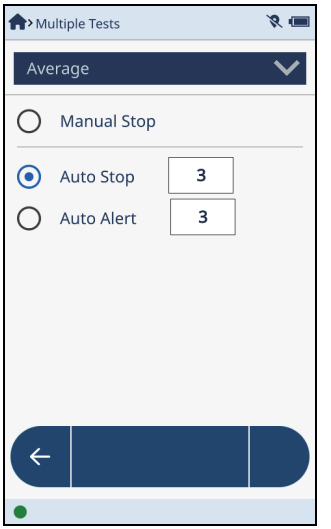

Figure 2-11 Average dialog box

When you start a test in Live View, it runs the number of times defined in the **Auto Stop** box and then calculates the average of the tests.

To manually run a preset number of tests

1. In the **Average** dialog box, tap the **Auto Alert** button (see Figure 2-11 on page 32).
2. Tap the **Auto Alert** box, and enter a value.
3. Dismiss the virtual keypad, and then tap the Back button ( ).

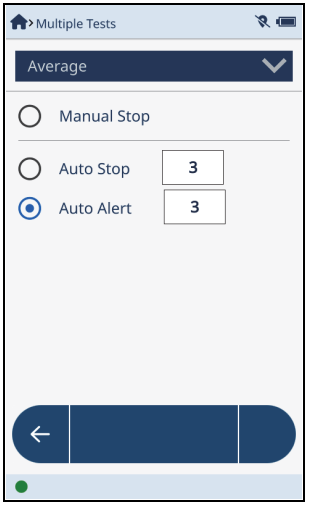

Figure 2-12 Auto Alert enabled

In **Live View**, you must manually start each test. When the number of tests defined in the **Auto Stop** box is reached, the **Auto Alert** dialog box (see Figure 2-13 on page 33) asks if you want to calculate the average or continue in manual average mode.

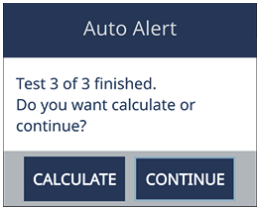

Figure 2-13 Live View — Auto Alert dialog box

To manually run and average tests

1. In the **Average** dialog box, tap the **Manual Stop** button (see Figure 2-14 on page 34).

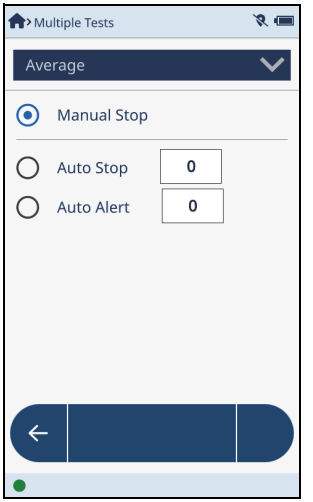

Figure 2-14 Manual Stop enabled

In **Live View**, you must manually start each test. When two or more tests have been run, the **Live Average** button ( ) enables you to average the current list of tests (see Figure 2-15 on page 35).

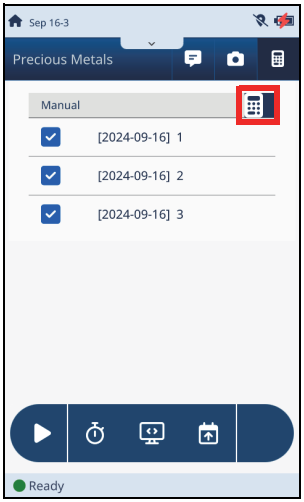

Figure 2-15 Live View — Manual average screen

2.1.4 User Factors

Your Vanta analyzer is optimized at the factory to detect a broad range of elements. You may be able to improve accuracy and account for matrix effects for particular elements of interest by creating user factors with custom **Factor** and **Offset (%)** variables.

You can create multiple user factors and recall them at any time without altering the factory settings.

Before you begin, determine appropriate factor and offset values for your particular elements of interest. This can be done by plotting the known or assayed values versus the measured XRF values and determining a best fit line. The factor will be the slope of that line.

To open the User Factors screen

- Tap the **User Factors** button (USER FACTORS) [either in the **Menu Tray** or on the **Live View** screen, if available] to display the **User Factors** screen.

To select a user factor

1. Tap the down arrow to display a list of available user factors (see Figure 2-16 on page 36).

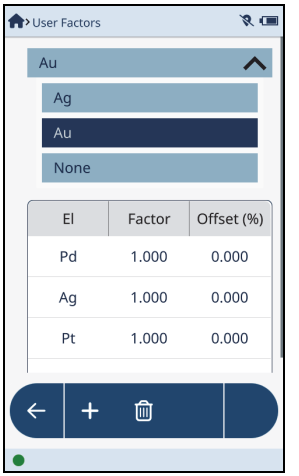

Figure 2-16 Available user factors

2. Tap a user factor to display the elements (see Figure 2-17 on page 37).

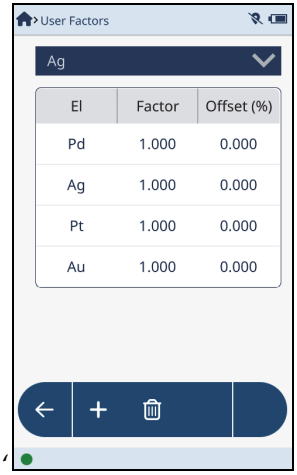

Figure 2-17 User factor elements

To edit a user factor element

1. Double-tap a **Factor** or **Offset** (see Figure 2-18 on page 38).
2. Enter a new value.

   Factor multiplies the result and **Offset** adds to the result. You can make any linear correction to the calculation to achieve agreement with assayed values for varied matrices.

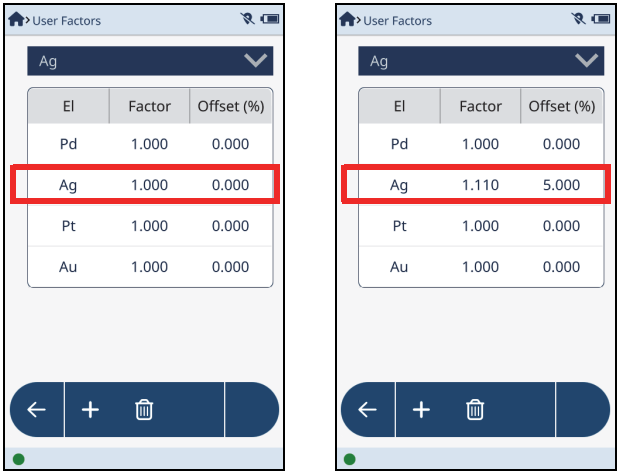

Figure 2-18 Value before (left) and after (right) editing

To add user factors

1. On the **User Factors** screen, tap the **Add** button (+).
2. Tap the dialog box, and enter the factor name (see Figure 2-19 on page 38).

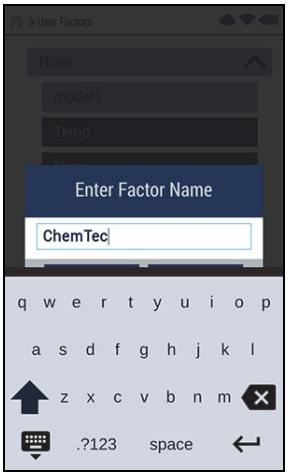

Figure 2-19 Factor name entry

3. Dismiss the keypad, and tap **OK** to view the new user factor (see Figure 2-20 on page 39).

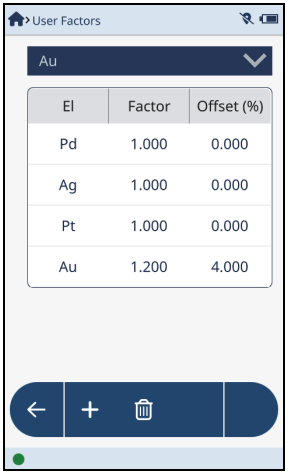

Figure 2-20 New user factor

To delete user factors

1. In the **User Factors** list, tap the factor that you want to delete.
2. Tap the **Delete** button ( ).

   The **Delete** button turns red to indicate that the selected factor will be deleted when you tap again to confirm the deletion (see Figure 2-21 on page 40).

NOTE

You have three seconds to tap the **Delete** button while it is red to confirm the deletion. After three (3) seconds the **Delete** button reverts back to blue, and you must repeat step 2 to start over the delete action.

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3. Tap the **Delete** button again (while it is still red) to confirm the deletion.

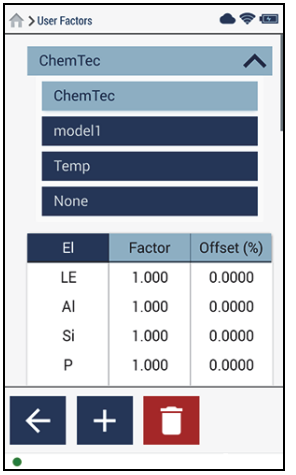

Figure 2-21 User factor delete confirmation

2.1.5 Method Display

The method display options determine what information is displayed in the Method area of the **Live View** screen (see Table 1 on page 40).

Table 1 Method display options

	Show estimated LOD	Show uncertainty	Show chemistry	Show user factor name	Show plate alert	Show Au Karat
Alloy	X	X	X	X		
Alloy Plus	X	X	X			
Hot Alloy Plus	X	X	X			
Coating	X	X	X			
Car Catalyst	X	X		X		
GeoChem (1, 2, or 3)	X	X		X		
Precious Metals	X	X	X		X	X

Table 1 Method display options *(continued)*

	Show estimated LOD	Show uncertainty	Show chemistry	Show user factor name	Show plate alert	Show Au Karat
RoHS	X	X	X			
RoHS Plus	X	X	X			
Soil	X	X	X	X		

- **Show estimated LOD** — Displays the elements that fall below the minimum limit of detection (LOD). Displays elements present at levels below the analyzer LOD for that particular element. These elements are displayed below the elements that are present at or above the LOD. The LOD is estimated and displayed in the ± column.
- **Show uncertainty** — Adds a column to the chemistry display showing the ± or uncertainty values.
- **Show chemistry** — Displays chemistry values for the sample.
- **Show user factor name** — Displays the name of the site-specific calibration containing custom factor and offset variables.
- **Show plate alert** — Displays an alert message that the object under analysis is possibly gold plated.
- **Show Au Karat** — Displays (detected) gold content in karats or fineness.

To select method display options

1. Tap the **Method Display** button (

) [either in the **Menu Tray** or on the **Live View** screen, if available].

   Each method has a selection of one or more display options (see Table 1 on page 40).
2. Select the check-box or option button of the desired display option(s).

2.1.6 Method Display Options Example

The following is an example of the display options selected for the Precious Metals method:

- On the **Method Display** screen for the Precious Metals mode, **Show chemistry**, **Show uncertainty**, **Show plate alert**, and **Show Au Karat > AuKarat > Show Au Karat decimal** are selected (see Figure 2-22 on page 42).

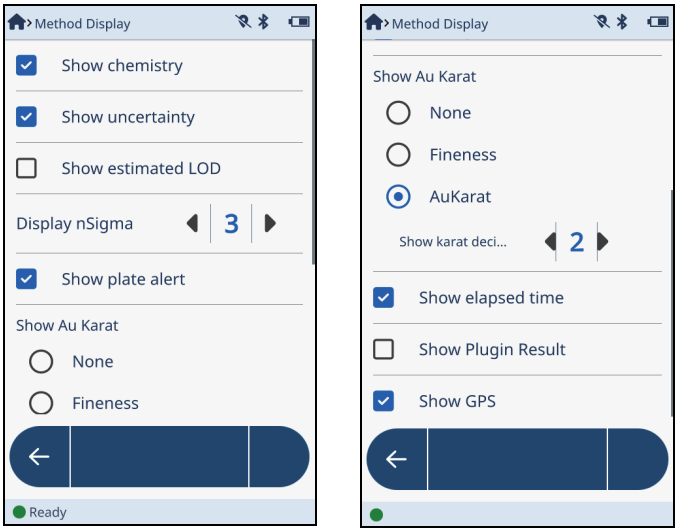

Figure 2-22 Method Display screen: Page 1 (left), page 2 (right)

- When the test is run, the **Live View** display reflects the selections made on the **Method Display** screen (see Figure 2-23 on page 43 and Figure 2-24 on page 44).

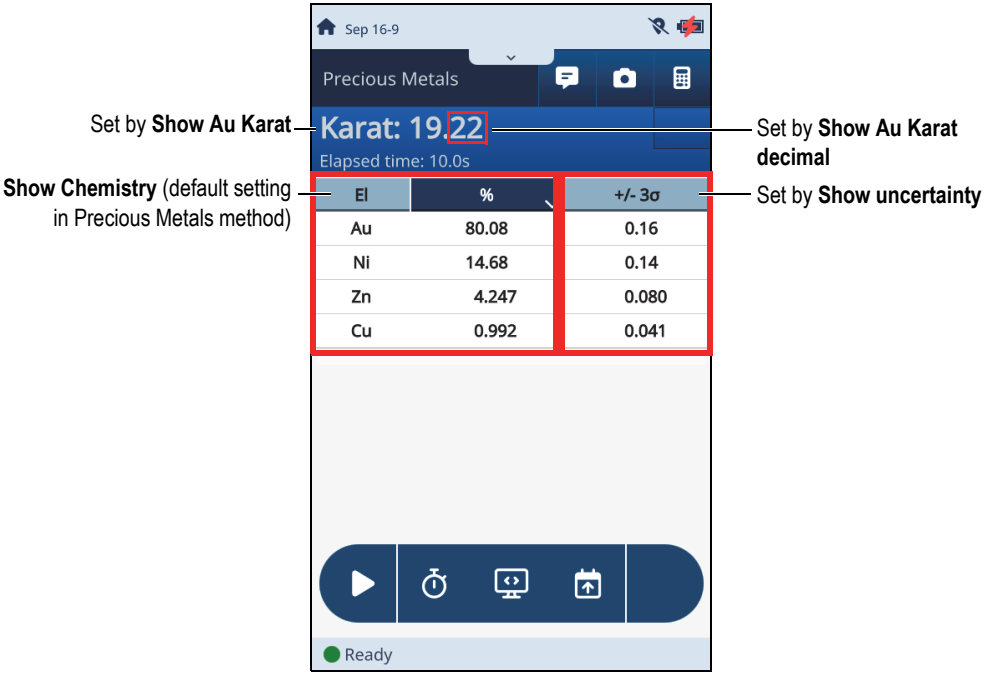

Figure 2-23 Results of Method Display selections (Karat)

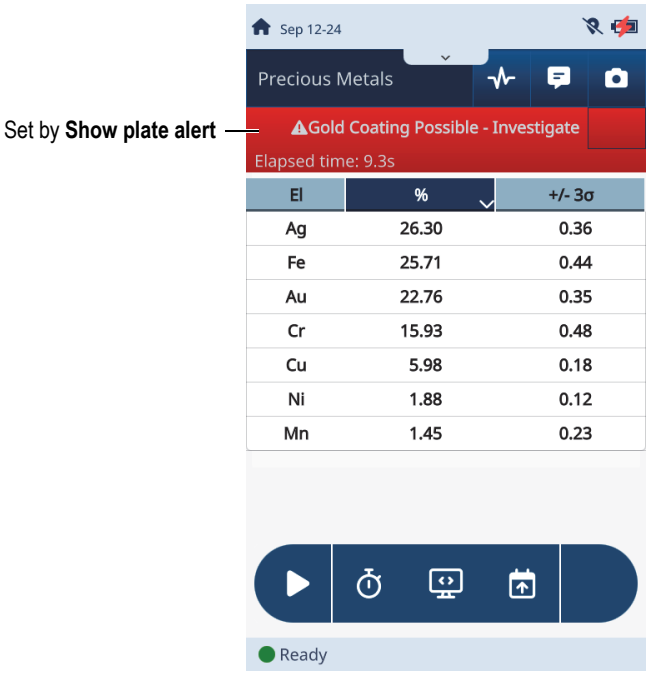

Figure 2-24 Results of Method Display selections (Plating)

2.1.7 Notes

Notes contain text that can be displayed on the screen after a test is run. You can set up notes to be edited before or after a test is run. You can also set up and customize templates for notes in the Vanta PC Software (see the *Vanta PC Software User Interface Guide*).

To open the Notes screen

- Tap the **Notes** button ( ) [either in the Menu Tray or on the **Live View** screen, if available] (See Figure 2-25 on page 45).

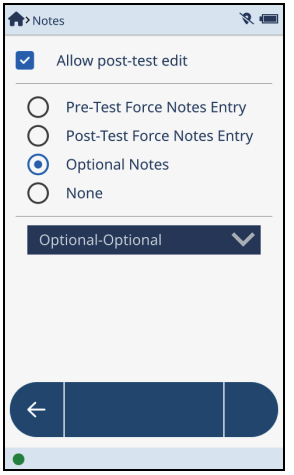

Figure 2-25 Initial Notes screen

To set up optional notes

1. Tap the **Optional-Optional** down arrow so that the **Optional** bar is displayed (see Figure 2-26 on page 45).

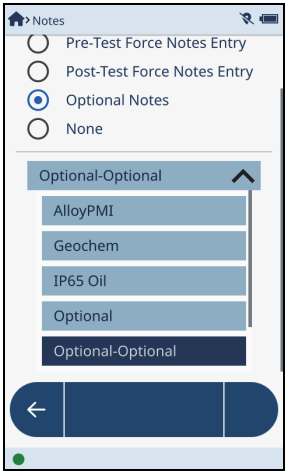

Figure 2-26 Optional Notes bar

2. Tap the **Optional** bar to display the **info** field (see Figure 2-27 on page 46).

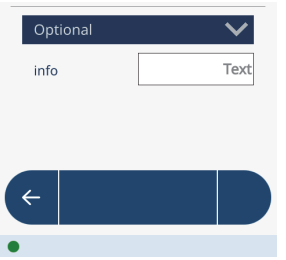

Figure 2-27 Optional bar

3. Tap the **Optional** down arrow to display a list of available note options (see Figure 2-28 on page 46). Note templates can be set up and customized in the Vanta PC Software (see the *Vanta PC Software User Interface Guide*).

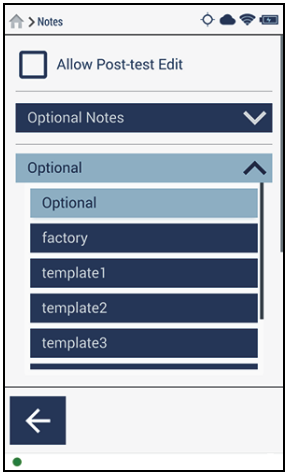

Figure 2-28 List of Note options

4. Tap an option to select it.
5. If available, tap an arrow on the option bar to open its list (see Figure 2-29 on page 47).

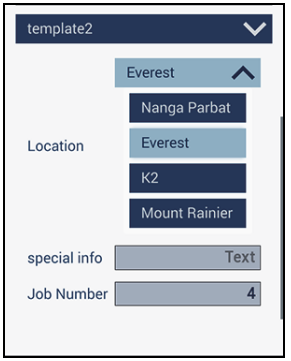

Figure 2-29 Down arrow (Everest) reveals list

6. Fill in any editable fields, if desired (see Figure 2-30 on page 47).

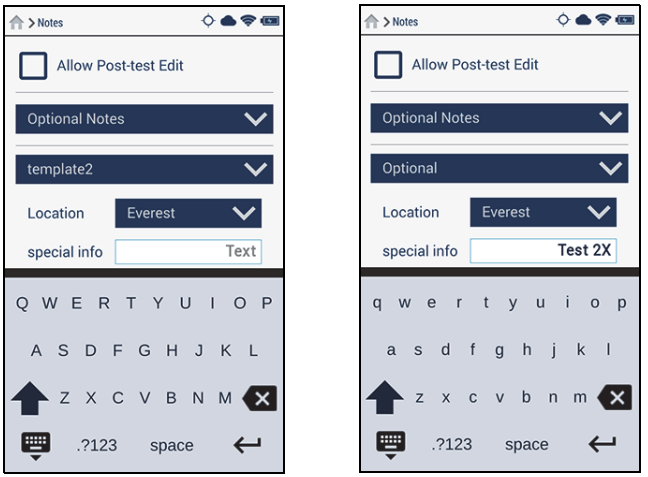

Figure 2-30 Special info field before (left) and after (right) fill-in

The results of your selections can be viewed on the **Live View** screen (see Figure 2-31 on page 48).

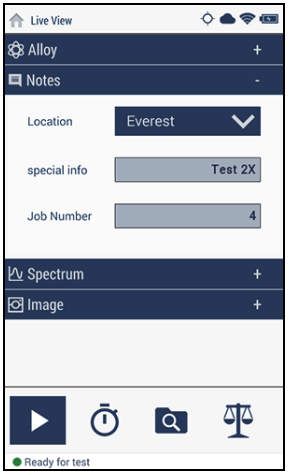

Figure 2-31 Optional note in Live View

To force note editing at test time

1. Tap the **None** down arrow on the **Notes** screen to display all the notes choices.
2. Tap the **Force Notes Entry** bar to display the options (see Figure 2-32 on page 48).
3. Select an option:
   - **Pre-test** forces you to edit the note immediately before a test is run.
   - **Post-test** forces you to edit the note immediately after a test is run.

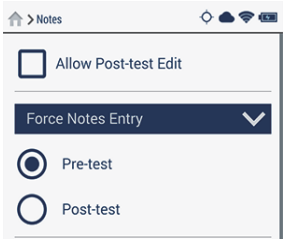

Figure 2-32 Force Notes Entry options

To edit notes after a test

1. On the **Notes** screen, select the **Allow Post-test Edit** check-box (Allow Post-test Edit) to select it.
2. In **Live View**, tap the **Notes** bar to open the test note (see Figure 2-33 on page 49).
3. Tap in an entry box, and enter or modify the text.

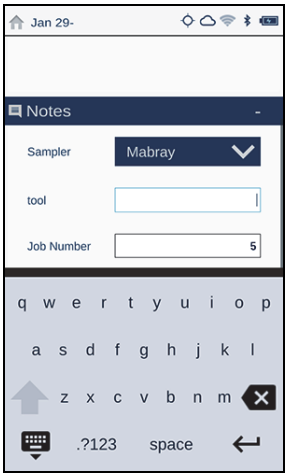

Figure 2-33 Optional note in Live View

2.1.8 Export Settings

You can specify the types of content for export, and select a file and device destination for the exported information. Export templates can be set up and customized in the Vanta PC Software (see to the *Vanta PC Software User Interface Guide*).

To open Export Settings screen

- Tap the **Export Settings** button (EXPORT SETTINGS) [either in the Menu Tray or on the **Live View** screen, if available] (See Figure 2-34 on page 50).

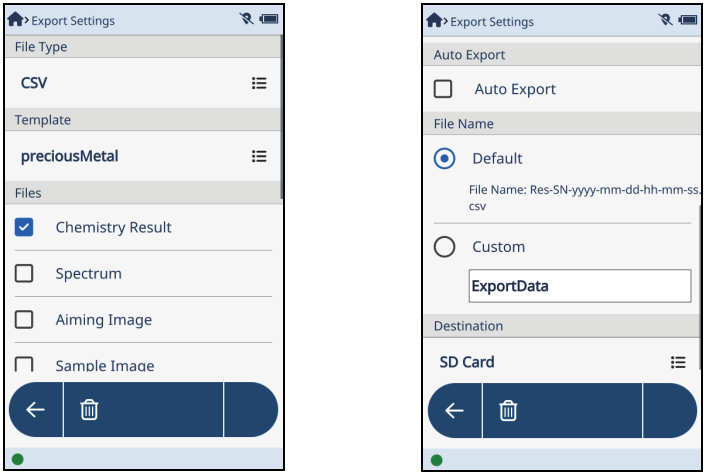

Figure 2-34 Export Settings screen top (left) and bottom (right)

To specify the export content

- Select the check-boxes in the **Content** section to specify the type(s) of content you want exported.

To select an export template

1. Tap the **Template** list button (☰) to reveal the available templates.
2. Select a template name option button (see Figure 2-35 on page 51).

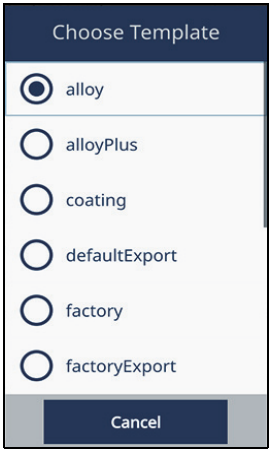

Figure 2-35 Choose Template dialog box

To specify an export file type

1. Tap the **File Type** list button (☰) to reveal the available file types.
2. Select a template name option button (see Figure 2-35 on page 51).

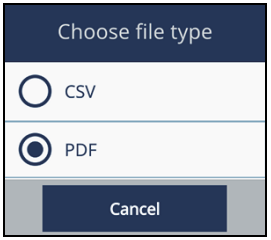

Figure 2-36 Choose file type dialog box

To specify an export name and location

1. Under **File Name**, select either **Default** (file name) or **Custom** (and enter a file name) [See Figure 2-37 on page 52].

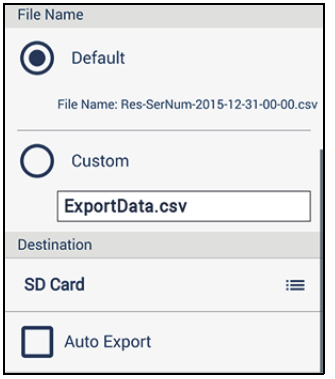

Figure 2-37 Export Settings — export location

2. Tap the **Destination** list button (☰) to open the **Choose Destination** dialog box (see Figure 2-38 on page 53).
3. Tap an option button to select a destination.

NOTE

The microSD card must be installed in the Vanta analyzer before you can select it as a destination. Refer to the *Vanta Family X-Ray Fluorescence Analyzer User's Manual* for more information on installing the microSD card.

NOTE

The USB memory (flash drive) must be installed in the Vanta analyzer before you can select it as a destination. Refer to the *Vanta Family X-Ray Fluorescence Analyzer User's Manual* for more information on installing the USB memory card.

NOTE

A network folder must be mounted before it will receive data. See "Network Folder" on page 113.

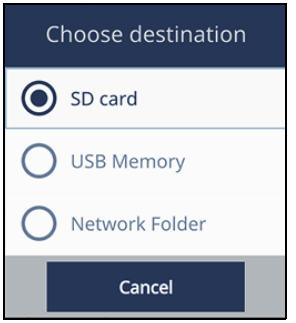

Figure 2-38 Choose Destination dialog box

To automatically export after each test

1. Select the **Auto Export** check-box to automatically export an Excel (.csv) results file to the selected destination after each test is complete (see Figure 2-39 on page 53).

Figure 2-39 Auto Export check-box

2. Go to **Live View** and run a test.
   The results will be exported to the selected destination immediately after the test is complete.

2.1.9 Export Today

The **Export Today** action button (

) can appear in several areas of the UI.

To export the results for the current day

NOTE

A valid export destination must be set up before using **Export Today**. See "Export Settings" on page 49.

- Tap the **Export Today** button (

) to immediately export test data for the current day in Excel (.csv) format.
  The export parameters are set on the **Export Settings** screen.

2.1.10 Browse Results

The **Browse Results** screen allows you to browse and display test results.

You can also export to a file from the **Browse Results** screen. The result of each test run on the Vanta analyzer is individually stored as a record. Each individual test result record is the smallest exportable unit. Results can be grouped for export as follows:

- Selected individual results
- All results for the current day
- All results for multiple days
- All results for the selected month or multiple months
- All results for the selected year or multiple years

Selected results can also be deleted.

To browse results

1. Tap the **Browse Results** button (

) [either in the Menu Tray or on the **Live View** screen, if available].
2. Tap a year to open the month view (see Figure 2-40 on page 55)

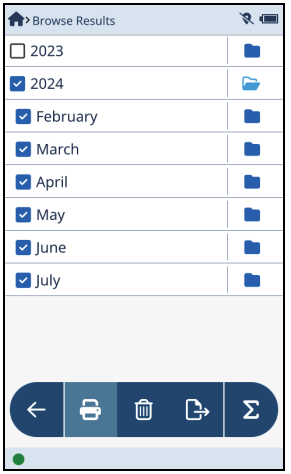

Figure 2-40 Browse Results — Month view

3. Tap a month to display a list of days.
4. Tap a day to display a list of test results for that day (see Figure 2-41 on page 55 [left]).
5. Tap a test result to view the data (see Figure 2-41 on page 55 [right]).

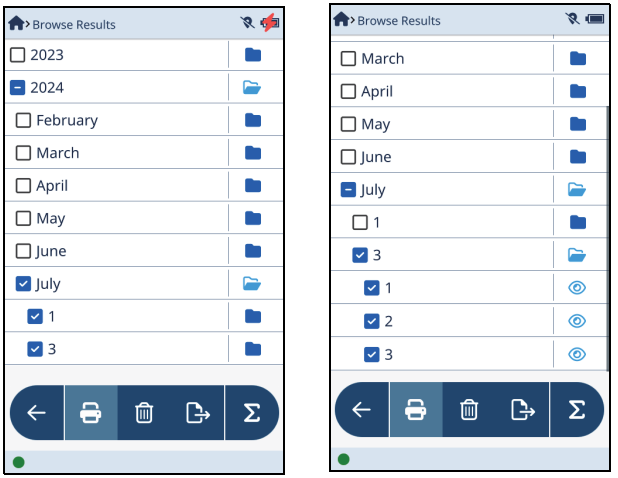

Figure 2-41 Browse Results: Day view (left), data view (right)

To select results for export

◆ Tap a check-box (or boxes) to select one of the following:

- All results for the selected year or multiple years
- All results for the selected month or multiple months
- Results for multiple days
- All results for the current day
- An individual result

The example in Figure 2-42 on page 56 shows an individual result selected for export.

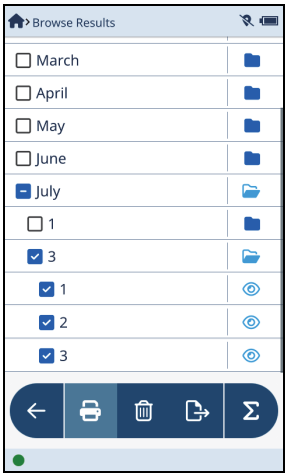

Figure 2-42 Test result selected for export

To export results to the selected destination

NOTE

A valid export destination must be set up before using the **Export** button. See "Export Settings" on page 49.

◆ Tap the **Export** action button ( ) to export the selected test result(s).

The results are immediately exported according to the parameters set on the **Export Settings** screen.

To delete results

1. Select the check-boxes of the results you want to delete.
2. Tap the **Delete** action button ( ).
   The **Delete** button turns red to indicate that the selected results will be deleted when you tap again to confirm the deletion (see Figure 2-43 on page 57).

NOTE

You have three seconds to tap the **Delete** button while it is red to confirm the deletion. After three (3) seconds the **Delete** button reverts back to blue, and you must repeat step 2 to start over the delete action.

3. Tap the **Delete** button again (while it is still red) to confirm the deletion.

Figure 2-43 Result delete confirmation

2.1.11 Element Order

The **Element Order** screen shows the elements that are calibrated in a particular method, and the order in which elements will be displayed in **Live View** after a test. The first time you open the **Element Order** screen, the default order is shown. When the test is run, the detected elements are listed first, followed by the non-detected elements.

NOTE

Certain **Method Display** options can affect how the elements are displayed.

To change the element order

1. Tap the **Element Order** button (ELEMENT ORDER) [either in the Menu Tray or on the **Live View** screen, if available].
2. Tap and hold an element until it is highlighted (see Figure 2-44 on page 58).

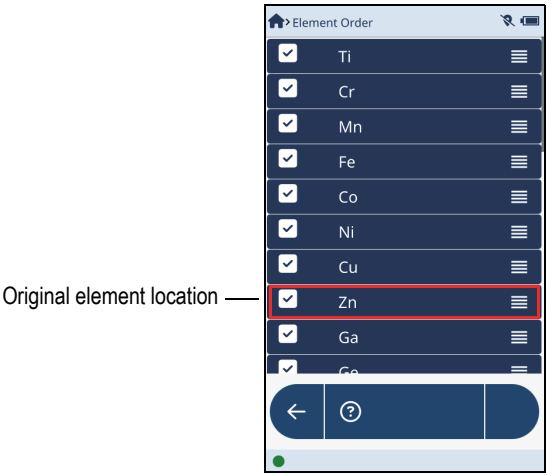

Figure 2-44 Element in original position

3. Drag the element up or down to a different position and release (see Figure 2-45 on page 59)

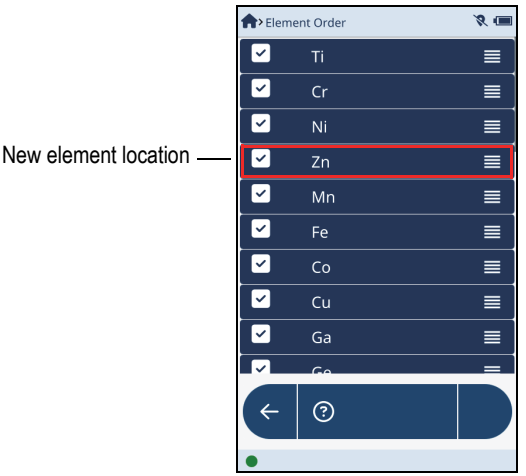

Figure 2-45 Element relocated

4. The displayed elements will change in **Live View** if all of the affected elements are detected.

2.1.12 Pseudo Elements

Pseudo elements are mathematical equations that can be used to express the equivalent of an existing metal or other material. Four examples are presented below.

1. The carbon equivalent of a carbon steel is an empirical value in weight percent, that governs the ability of the parent metal to harden. It is a rating of welding properties related to carbon, manganese, chromium, molybdenum, vanadium, nickel, and copper content. The pseudo element for the carbon equivalent is as follows:

   $$CE = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/15$$

2. A geologist would be interested in the mining element ratio Ti/Zr to determine the rock type (basalt or granite).
3. Another use for a pseudo element would be to determine flow accelerated corrosion as follows:

Cu + Mo + Cr

4. The fourth example of a pseudo element would be for determining compliance of the European Packaging Directive as follows:

   Pb + Hg + Cd + Cr < 100 ppm

2.1.12.1 Creating Pseudo Elements

Creating a pseudo element requires the following general steps:

- Creating a pseudo element model
- Building an equation (pseudo element) and adding it to the pseudo element list
- Populating the pseudo element model with equations from the pseudo element list.

To create a pseudo element model

1. Tap the **Pseudo Elements** button (

) [either in the Menu Tray or on the **Live View** screen, if available].
2. On the **Pseudo Element Model** screen (see Figure 2-46 on page 61), tap the **Add** button () to add a new model.

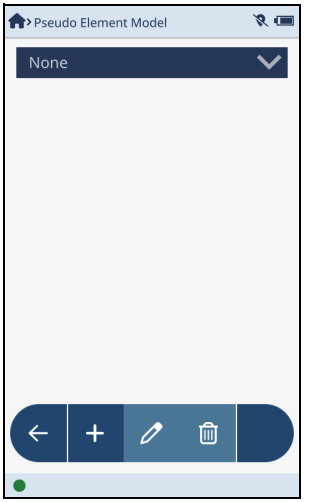

Figure 2-46 Pseudo Element Model screen

3. On the **Pseudo Element Edit** screen (see Figure 2-47 on page 62), tap the **Name** box and enter a model name.
4. Dismiss the virtual keypad.

Figure 2-47 Pseudo Element Edit screen

To build a pseudo element equation

1. On the **Pseudo Element Edit** screen, tap the **Edit List** button ( ) to open the **Pseudo Element List** screen (see Figure 2-48 on page 63, left).
2. Tap the **Add** button ( ) to name and build a new equation in the **Pseudo Element** dialog box (see Figure 2-48 on page 63, right).

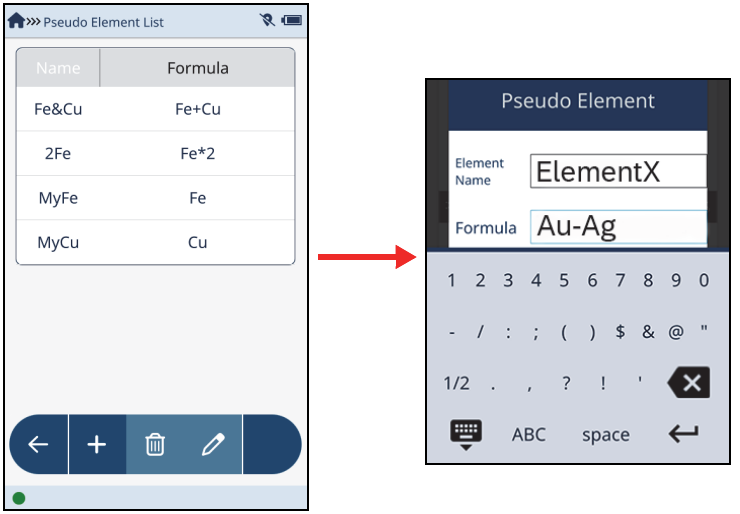

Figure 2-48 Pseudo Element List screen (left) and dialog box (right)

3. Dismiss the virtual keypad to see the new pseudo element added to the list (see Figure 2-49 on page 63).

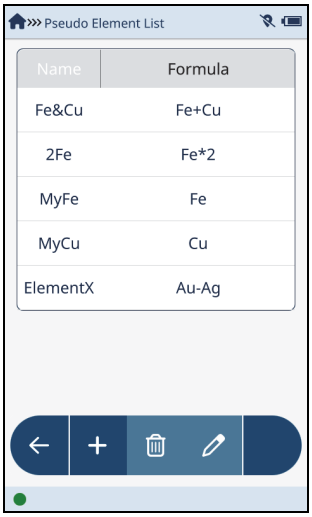

Figure 2-49 New pseudo element in list

To add pseudo elements to a model

1. On the **Pseudo Element Model** screen, tap the element model you want to use.
2. Tap the **Edit** button ( ) to display the **Pseudo Element Edit** screen (see Figure 2-50 on page 64).

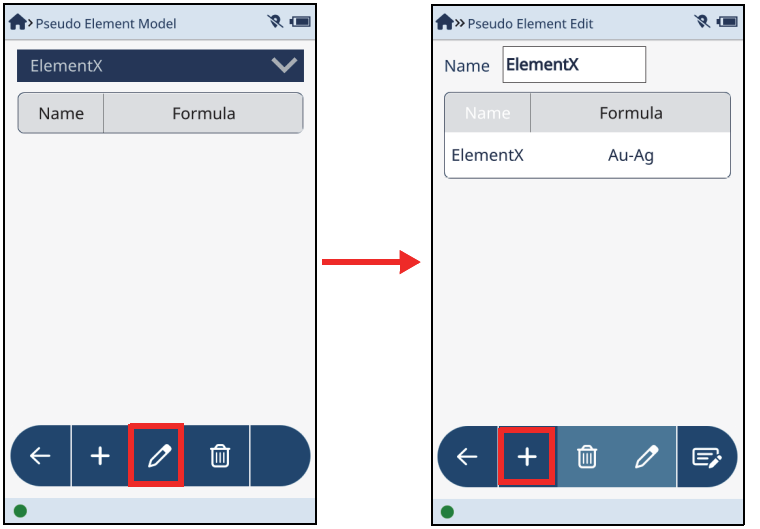

Figure 2-50 Pseudo Element Model screen (left) and Edit screen (right)

3. Tap the **Add** button ( ) to open the **Select Pseudo Element** dialog box.
4. Tap the pseudo element that you want to add to the element model.
   The newly added pseudo element is now listed with the element model (see Figure 2-50 on page 64 [right]).

To edit a pseudo element equation within a specific model

NOTE

Changing a pseudo element equation within a specific model does not change the definition of that pseudo element (in the **Select Pseudo Element** dialog box).

1. On the **Pseudo Element Model** screen, tap a model name to select it (see Figure 2-51 on page 65).
2. Tap the **Edit** button ( ) to display the model on the **Pseudo Element Edit** screen.

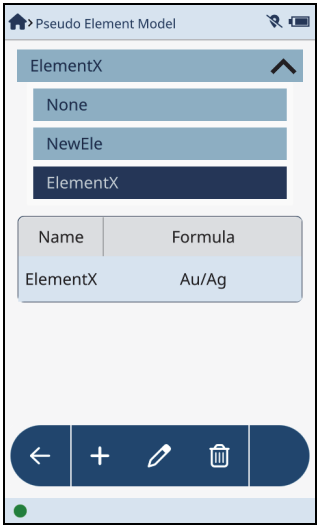

Figure 2-51 Pseudo Element Model screen

3. Tap the pseudo element that you want to edit (see Figure 2-52 on page 66 [left]).
4. Tap the **Edit** button ( ) to display the **Pseudo Element** dialog box (see Figure 2-52 on page 66 [right]).
5. Tap the **Formula** box, and edit the equation.
6. Dismiss the virtual keypad, and then tap **OK**.

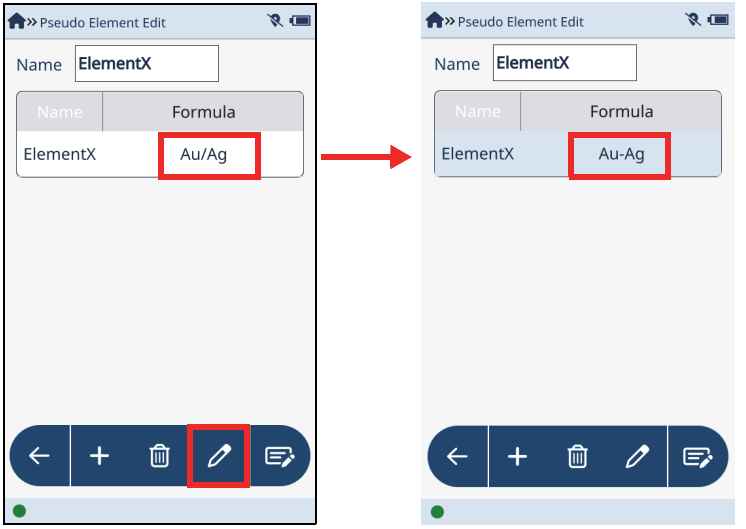

Figure 2-52 Pseudo Element Edit screen unedited (left), and edited (right)

The edited pseudo element for the model can be verified on the **Pseudo Element Model** screen.

To edit a pseudo element equation in the equation list

NOTE

Changing a pseudo element equation in the equation list changes the pseudo element equation globally, based on the model name.

---

1. On the **Pseudo Element Model** screen, tap an existing model name.
2. Tap the **Edit** button ( ) to display the **Pseudo Element Edit** screen (see Figure 2-53 on page 67 [left]).

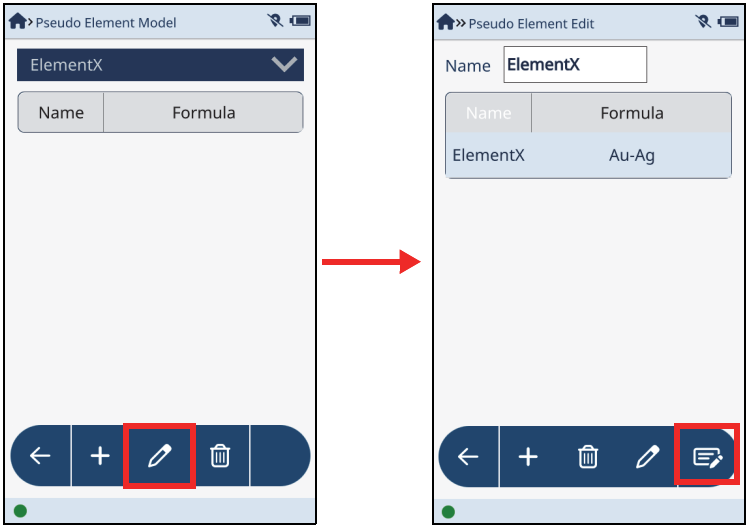

Figure 2-53 Pseudo Element Model screen (left) and Edit screen (right)

3. On the **Pseudo Element Edit** screen, tap the **Edit List** button ( ) (see Figure 2-53 on page 67 [right]) to open the **Pseudo Element List** screen (see Figure 2-54 on page 68).

4. Tap a pseudo element in the list, and then tap the **Edit** button ( ) to display the **Pseudo Element** dialog box (see Figure 2-54 on page 68).

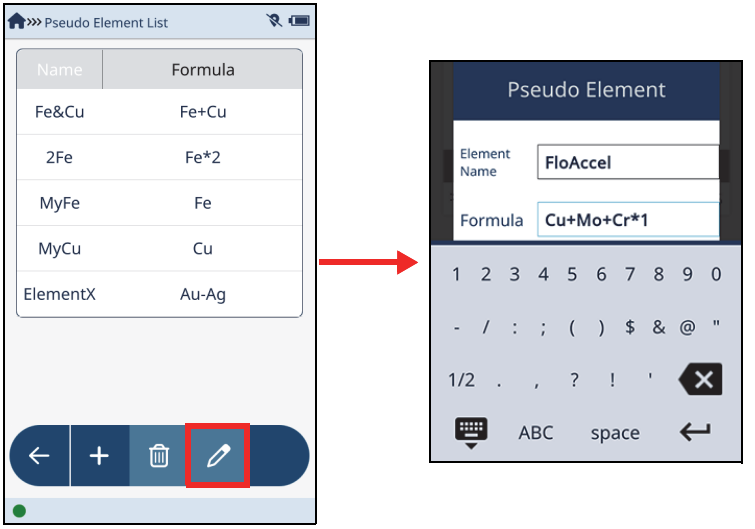

Figure 2-54 Editing an element in the Pseudo Element list

5. In the dialog box, tap the **Formula** box and edit the formula.
6. Dismiss the virtual keypad, and tap **OK**.
7. Tap the **Back** button ( ) to display the **Pseudo Element Edit** screen (see Figure 2-55 on page 69).

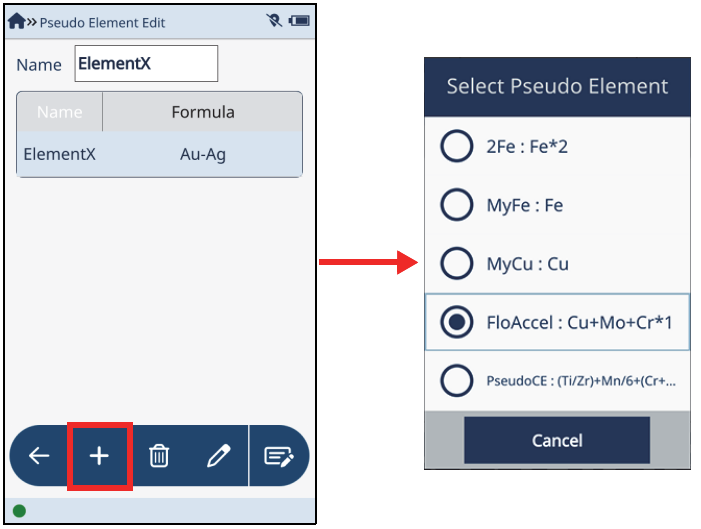

Figure 2-55 Viewing an element in the Pseudo Element list

8. Tap the **Add** button (+) to open the **Select Pseudo Element** dialog box (see Figure 2-55 on page 69).
   You can see the edited element in the dialog box list.

2.2 Alloy and Alloy Plus Methods

Alloy and **Alloy Plus** methods operate similarly, though the methods use a different number of X-ray beams. The **Alloy** method uses one beam. The **Alloy Plus** method uses two beams; beam two uses lower energy X-rays and is able to detect lighter elements such as magnesium (Mg) and aluminum (Al).

When the Vanta analyzer is in an alloy analysis method, it calculates elemental chemistry from spectral data. The analyzer then compares chemical composition values to Grade Library grade tables, and generates grade ID and chemistry values in as little as one second.