# Sampling with ONSITE W User´s Guide

April 2021

Version 2

CHEMOMETRIC **BRAIN**

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# Sampling with ONSITE W: User Guide

# 01 Sampling

## 1.1 Preparation of the sample

With Chemometric Brain and the ONSITE-W device from VIAVI, you will be able to analyze a wide range of raw materials and end-products in different presentations, such as solids, gels, paste, oil, or liquids.

In order to get the NIR spectra of your samples comfortably and easily, we recommend placing the samples in Petri dishes.

Make sure that the Petri dish is completely clean and dry before placing your sample on it.

It will be necessary to add a sufficient amount of sample so that the light from the spectrometer does not pass through it. We recommend that the height of the sample in the Petri dish should not be less than one centimeter.

## 1.2 Cleaning process

One of the advantages of applying the NIR technology to the analysis of your samples is that it is a non-destructive process, so you will be able to recover your entire sample after the measurement.

This way, you can reuse the Petri dish to measure other samples of interest.

However, it is very important to carry out a rigorous cleaning process between samples of the used material in order to avoid interferences in the collected spectra due to previous residues or contamination between samples.

The steps to follow to prevent any type of contamination are described below:

Step 1: Place the sample in the Petri dish.

Step 2: Scan the sample by placing the sensor on it (See section *4.3. Measuring the samples* of this User Guide).

Step 3: Remove any sample residue from the spectrometer sensor with a wet wipe or paper towel.

Step 4: Clean the sensor with a piece of paper towel moistened with 96 % alcohol and let it dry.

Step 5: Recover the sample with a clean spoon or spatula.

Step 6: Clean the Petri dish and the spoon with water, removing any residue from the previous sample.

Step 7: Dry the used material with a piece of paper towel.

Step 8: Clean the Petri dish and the spoon again, this time with 96% alcohol.

Step 9: Let the used material dry or dry it with a clean piece of paper.

Step 10: Once you are sure that the spoon, the Petri dish and the device sensor are completely clean and dry, place the next sample inside the Petri dish and start the process again.

# 02 Preparing the device

## 2.1 Standard accessories

The MicroNIR OnSite-W includes the following standard accessories:

- Two measurement collars with sapphire windows, AR-coated on one side for maximum light throughput
- Protected white reference target with a sapphire window
- Rugged carrying case including space for PC and tablet
- USB cable for charging and data connection to tablet or PC

## 2.2 Assembly of the equipment

Before using the device for the first time, it should be noted that the equipment is usually delivered unassembled, so you will have to attach the necessary accessory.

Before starting the measurement process, it is required to fit the small adapter contained in the kit. To attach it, screw the adapter into the end of the spectrometer where the light source is located (see image below).


It is important to always screw the adaptor to the same point on the device because a difference in the positioning of the adaptor can lead to variations in the spectra obtained.

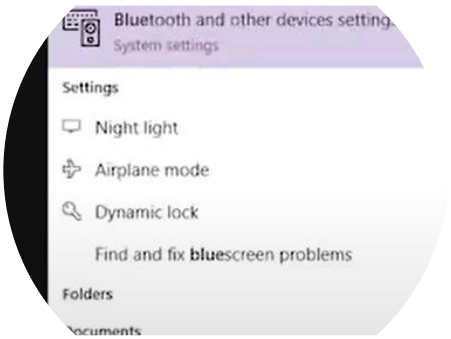
# 03 Connecting the device

### 3.1 Bluetooth connection

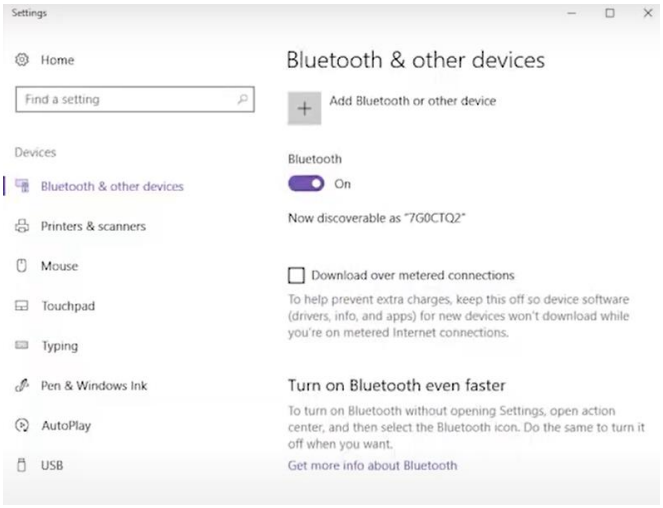
To connect the MICRONIR ONSITE W for the first time, follow the next steps (and remember to complete them always with the local software closed):

Step 1: Push the Onsite-W purple Multifunction button (see image) and wait until the LED flashes blue.

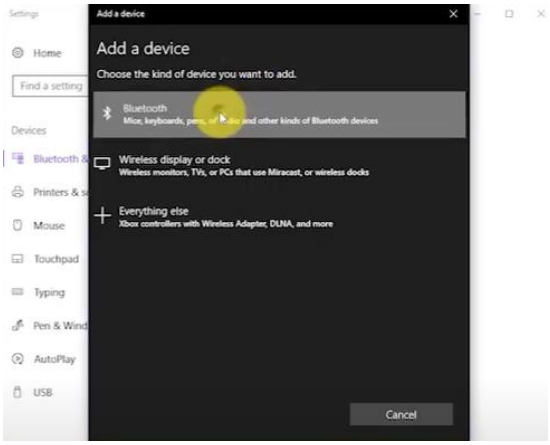
Step 2: Go to the “Search Window” located next to the Start menu icon in your computer and type Bluetooth on it, the following pop-up window will appear:



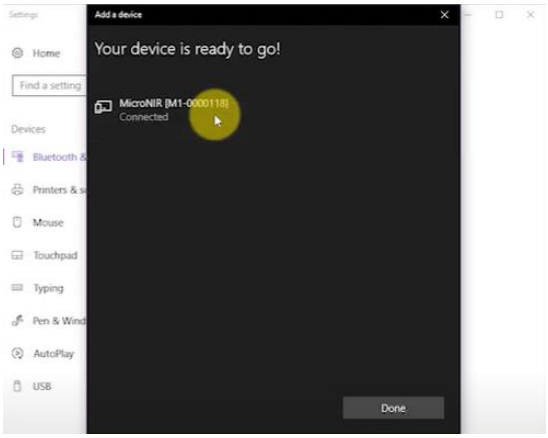

Step 3: Click on the “Bluetooth and other devices settings” option and a new pop-up window will appear:




Step 4: Select the option “Add Bluetooth or other device”, click on “Bluetooth” and wait until the PC finds the target device.




Then click on the device to connect it. If the connection procedure has been successfully achieved, you will see on the screen that the MICRONIR device appears as connected.



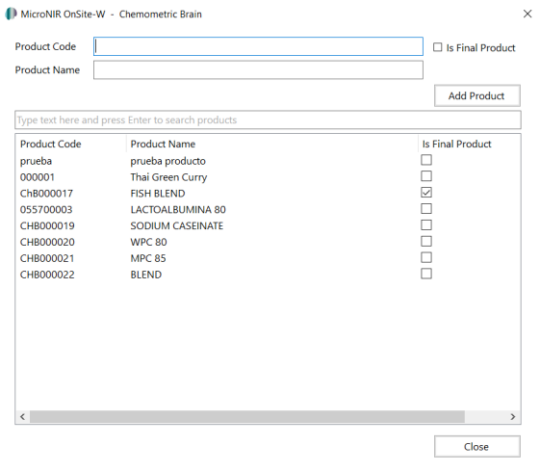

Note: Once paired, your PC will remember the Onsite-W and connect automatically.

# 04 Software

## 4.1 Adding new products

Once the equipment is already connected and prepared for the acquisition of NIR spectra, the following step is to register the product that you want to measure.

For that purpose, open the MICRONIR Onsite W local software, click on the “Add products” button and a new pop-up window will appear.

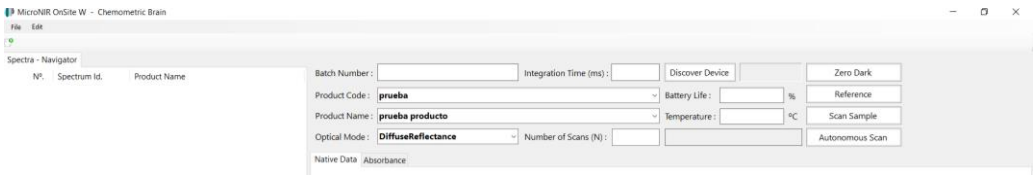



Firstly, you should introduce the “Product Code” and the “Product Name” and indicate the corresponding option: “Final Product” or “Raw material”. Secondly, press the “Add Product” button and click on “Close”.

## 4.2 Discover device, dark and reference

Several steps need to be performed before recording the NIR spectra of the products under study with the MICRONIR Onsite W device.

Step 1: Click on “Discover device” (see image):




If the equipment is correctly connected, the “Discover Device” button will turn green. This is indicative that the device and the local software are now well-connected.

Step 2: Take the MicroNIR OnSite W device without facing it to a specific place and then press the “Zero Dark” button.

Step 3: Take the MicroNIR OnSite W device and face it again to the protected white reference target with a sapphire window (see image) and then press the “Reference” button.

### 4.3 Measuring the samples

Once the device is connected and the products are registered, you can start measuring your samples. These are the steps to follow:

Step 1: Enter the information about “Batch Number”, select the “product name” and the “Product code” box will be autocompleted.

Step 2: Choose the optical mode “Diffuse Reflectance or Transmission” in which you will work during the acquisition of the NIR spectra.

Step 3: Select how you will be interested in measuring the samples. You have two options:

- Scan Sample Mode: working on this mode each time you want to measure you need to click on the “Scan Sample” button on the local software and then press on the “purple” button of the device. You need to repeat this procedure for each sample you measure.

- Autonomous Scan Sample Mode: it enables you to measure continuously by just pressing the “purple button” of the device each time you measure. In that case, you only need to take care of editing the batch name for each measurement you take. Ex: if you are interested in measuring 1 batch three times, in this mode each time you press the “purple button” a consecutive number will be added to the batch number or name given to the measurement in order to save the three measurements.

Step 4: Take the Petri dish containing the sample to be measured and place the MicroNIR device in a vertical position with the sapphire window pressing on the powder blend (see image). In order to have the most homogeneous measurement procedure, please try to always apply the same pressure on the powder blend. Also, remember always to check out that the powder is uniformly distributed on the Petri dish and there are no empty spaces or bubbles on it.

To get the Spectra, press “Scan Sample” and the purple button on the device or only the purple button, depending on the chosen mode to measure.

Another method to measure your sample is placing the device in a laboratory holder in vertical position with the sapphire window upwards (see image). In case of using this method, the bottom of the Petri dish must be in contact with the end of the spectrometer where the sensor is located.

# 05 Uploading the spectra to Chemometric Brain

### 5.1 Importing the NIR spectra files

Once all spectra have been collected by using the local application developed by Chemometric Brain, it is time to transfer all those spectra to the database.

In order to upload your spectra to the database, you have the option to do it automatically o manually.

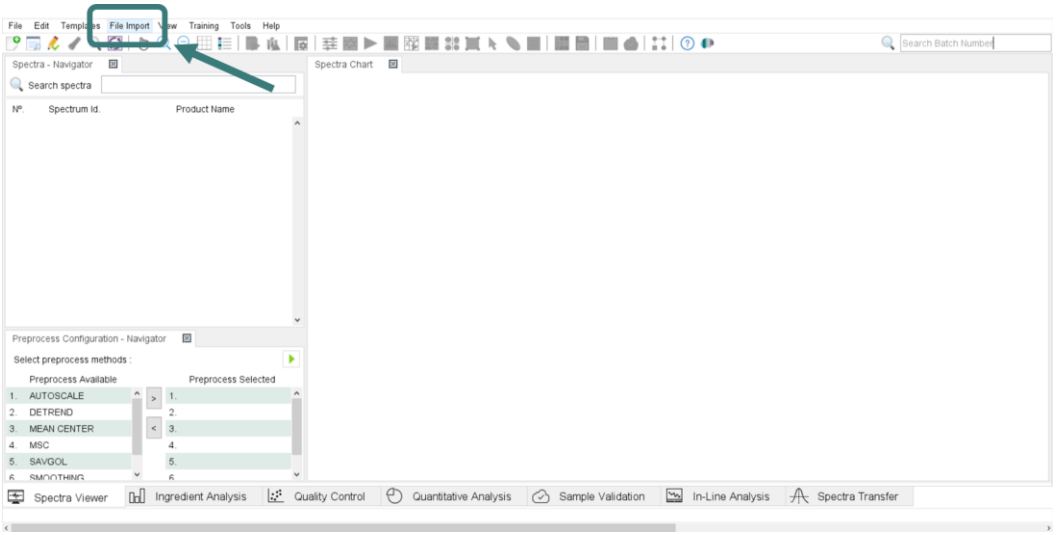
If you choose you import the spectra automatically from you PC to Chemometric Brain, contact with the Technical Support Team and they will arrange that for you.

In case you prefer to do it in a manual way, locate where the NIR files have been saved on your computer before starting the import. They will usually be stored in the same folder containing the local software files for using the ONSITE-W device.

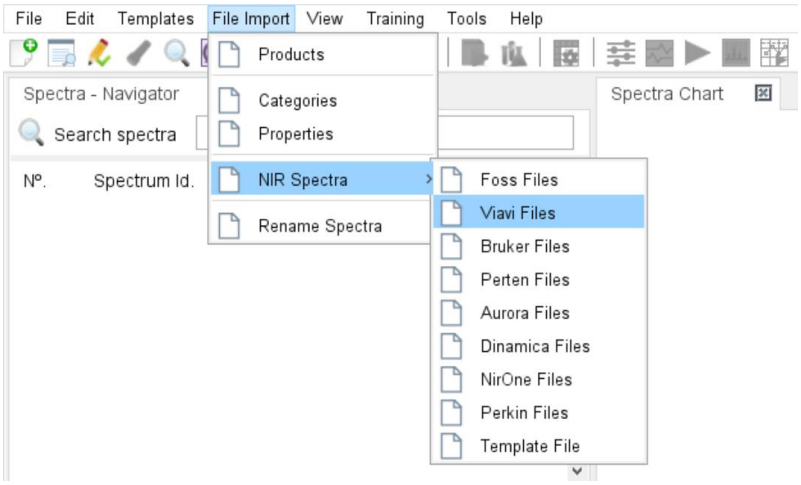
The path to the files is usually similar to the one shown in the following image:


Once you know the location of the files, open your web browser and log in to Chemometric Brain. These are the steps to follow in Chemometric Brain software in order to complete the importing process:

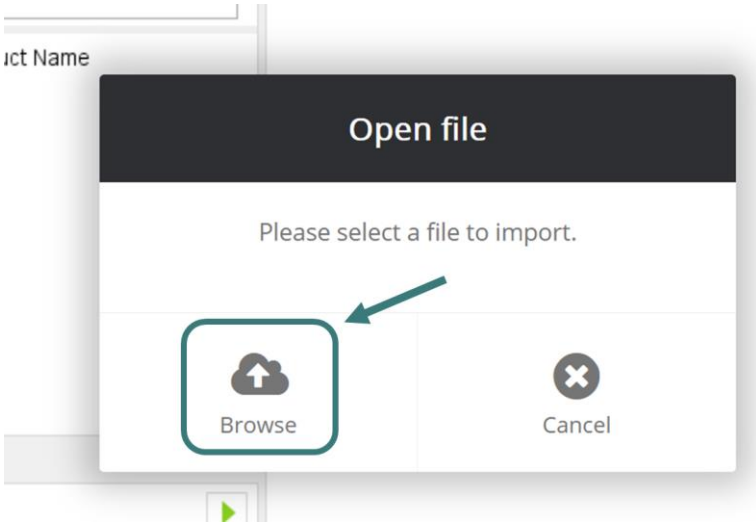
Step 1: Click on “File Import” in the menu at the top of the screen



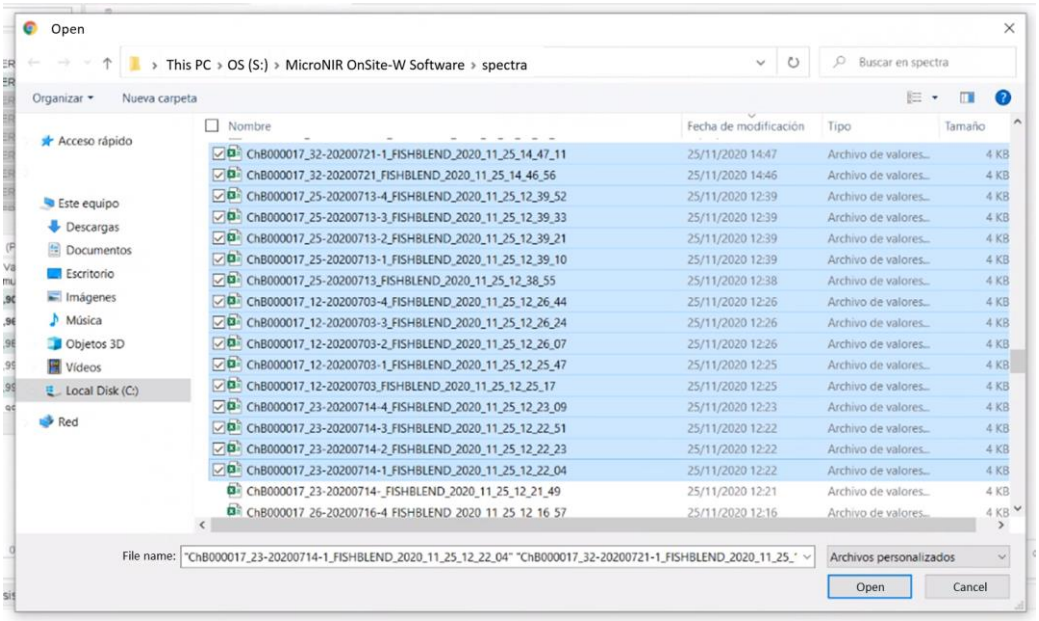

Step 2: Select the option “NIR Spectra” and then click on “Viavi Files”.




Step 3: The following pop-up window will appear on screen. Click on the option “Browse”.


uct Name
Open file
Please select a file to import.
Browse
Cancel

Step 4: A new pop-up window with a file explorer will open. Browse to the folder where the spectra are located, select the ones to be uploaded to the database (remember that you can select several files at once using the “Ctrl” key on your keyboard) and click on the “Open” button.




Step 5: Once Chemometric Brain has uploaded all the spectra, a message will appear in the lower-left corner of the software indicating the number of spectra successfully imported into the database.