ABB FTLA2000 FT-IR Spectrometer Instructions

SAMPLE PREPARATION and SOFTWARE ACCESS:

- Obtain Spec. grade CH_2Cl_2 in the hood closest to the instrument. Prepare a concentrated solution of your analyte and apply to a salt plate. Salt plates can be found in a dessicator near the instrument.
- Access the FT-IR software by double clicking on the **Horizon HB** icon on the desktop.
- Enter the following information:

  User Name: **FTIR**
  Password: **AJM328A.**
- If asked, enter **chemistry** as the department name.

CHECKING SPECTROMETER COMMUNICATION:

- The desired **Resolution** can be adjusted directly on the instrument. For most applications, set the spectrometer resolution to **4 cm^{-1}** with the side panel dial.

Figure 1. Control Panel

- For ATR applications, the **Detector Gain** value can be modified by removing the top cover of the right purge tube.
- Click on **Acquisition** in the **Instrument** tab of the toolbar.

- Click on the **Connection** button in the Instrument panel.
- Click on **Live** and monitor the instrument signal strength. Optimal **Signal Strength** is between 25% and 90%.

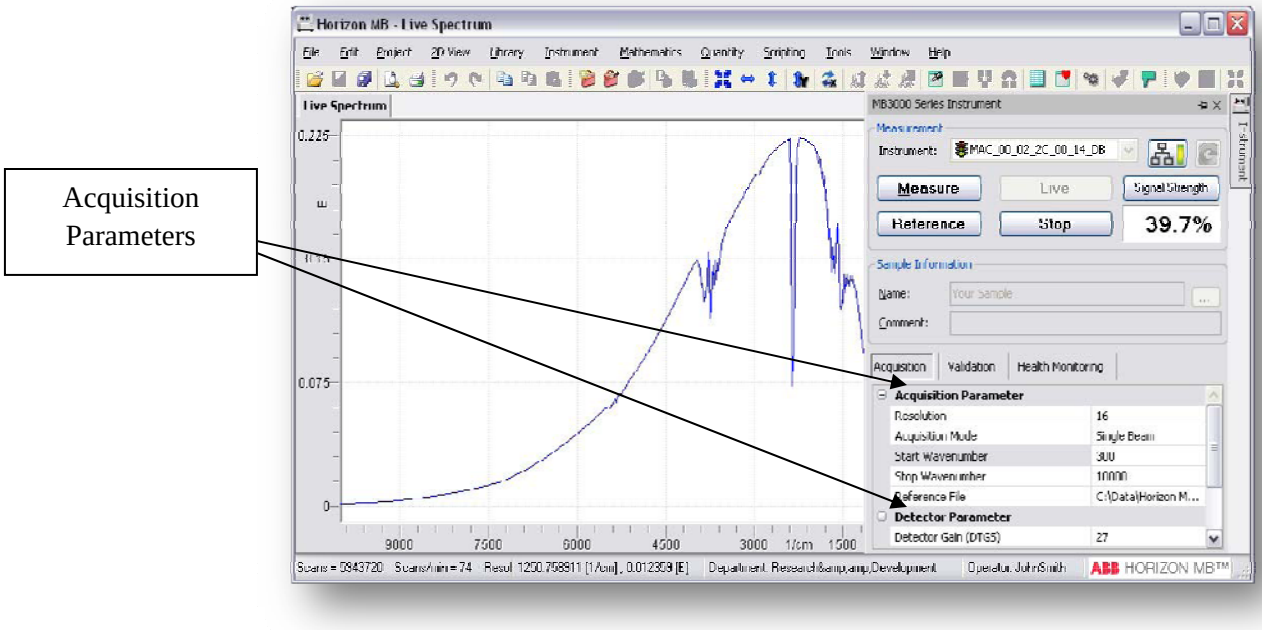

Figure 2. Live Spectrum Screen.

- Click on **Stop** to exit live mode.

SAVING THE DATA:

- Set the location to save data by clicking on the **...** button:

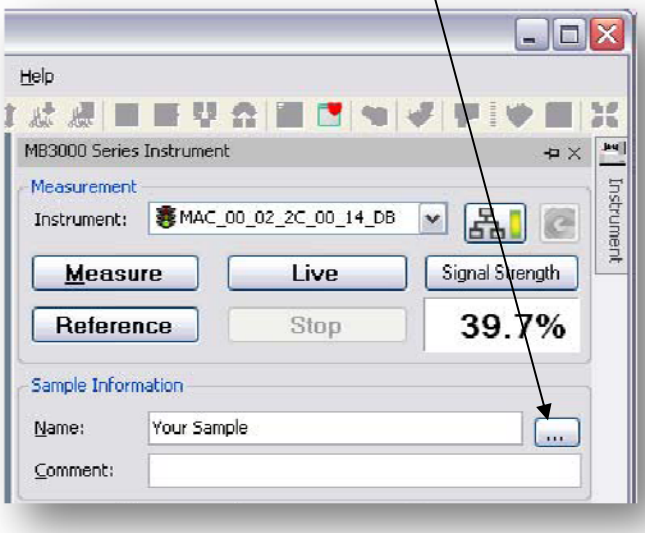

Figure 3. Spectrum Acquisition Screen.

- Enter the **Sample Name** and make sure the **Path** and **Project** folder are defined as follows:

  Path: **C:\Users\ABBBomem\Documents\horizon MB Data**

  Project: **YOUR FOLDER'S NAME**

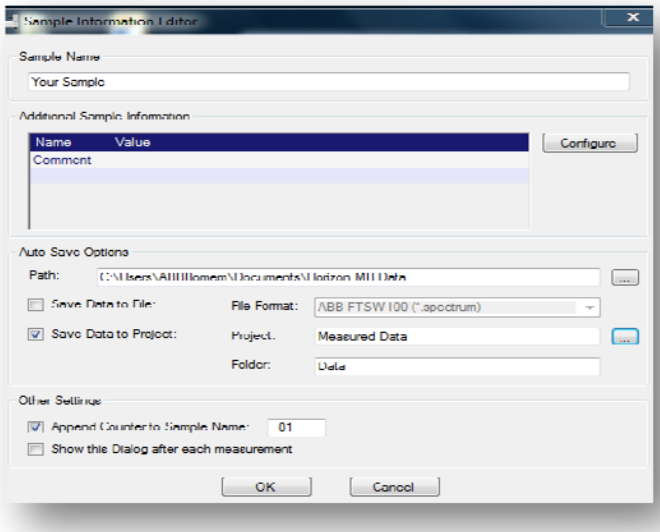

Figure 4. Sample Information Editor.

- Check the Data to Project box and select the desired folder.

SPECTRUM ACQUISITION:

- Make sure the sample compartment is empty, and adjust the telescopic purge tubes as close to one another.
- The background will be collected in the single beam mode. The FT-IR will collect the sample spectrum as a ratio, subtracting out the background. In order to collect a background, set the acquisition mode to **Single Beam** and the desired number of **Scans** in the **Acquisition Parameter** window and click on the **Reference** button.
- In order to collect a spectrum, place the IR plate in the sample compartment and set the acquisition mode to **Absorbance** or **Transmittance** click on the **Measure** button.

ANALYSIS:

Baseline Correction:

- Select **Baseline Correction** from the **Mathematics** tab in the toolbar.
- Select the desired baseline correction by adjusting the red square boxes on either end of the correction line. Click on **Calculate** in the mathematics window.

- Close the baseline correction window.

Figure 5. Baseline Correction.

Setting Trace Limits:

- Click on the axis to be modified and apply new limits. These will be reflected in the active window and print outs.

Labeling Peaks:

- Select **Peak Picking** from the **Mathematics** tab in the toolbar.
  A peak table will appear at underneath the spectrum.
- In order to add additional peaks, place the cursor just below the peak of interest and press the Ctrl key along the left mouse button.
- In order to delete unwanted peaks, just select the peak in the peak table and delete the corresponding line.
- Close the peak picking window.

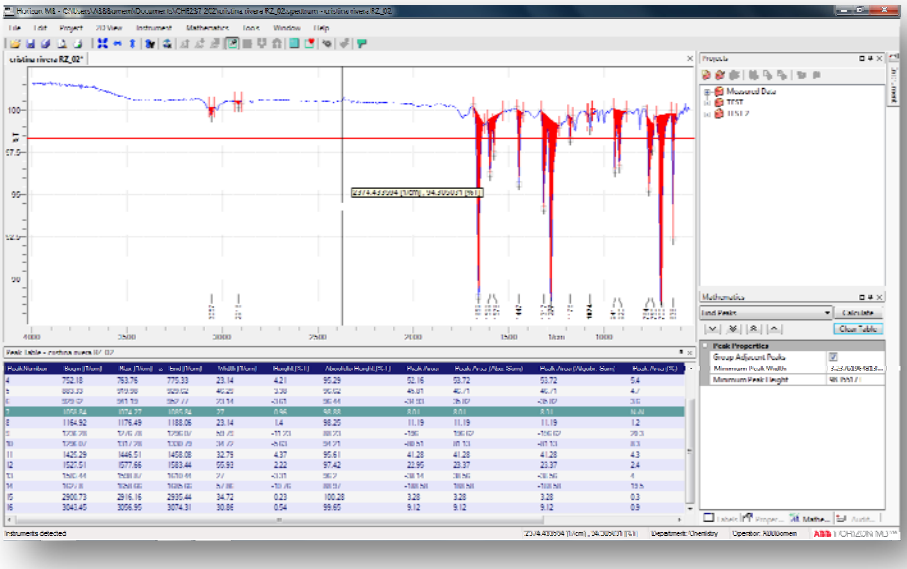

Figure 6. Peak Picking.

PRINTING:

- Select **File** then **Print.**
- Click **Set up** and select **Landscape** printing.
- Click on **Print** button.

FINISH:

- Remove the IR plate from the sample compartment and bring telescopic purge tubes close together.
- Clean the plate with CH_2Cl_2. **DO NOT USE WATER!!**
- Return plate to the dessicator.