

iS5 FT-IR Spectrometer Basic Operating Instructions

1. Open the “OMNIC” software by clicking on its icon on the desktop.
2. To open a New Window (if necessary):
 - a) CLICK “**WINDOW**” (at top of screen) → select “**NEW WINDOW**” → click “**OK**” (do not type anything in the box)
3. To collect a Background Scan:
 - a) Click “**Col Bkg**” (second icon from the left on upper menu bar) → Click “**OK**” when a pop-up box appears. A single acquisition will occur, resulting in the display of a background absorbance spectrum.
 - a) Click “**START COLLECTION**” (upper right). Eight acquisitions (i.e. 8 scans) will occur, counted off below the lower left corner of the spectrum.
 - b) Click “**NO**” so the background scan will not be added to window 1—You do not want the background scan to be superimposed over the absorption spectrum of your sample!
4. Load your sample on the crystal of the iS5 FT-IR Spectrometer. (*See the figures on page 2!!*)
 - a) For Solid Samples: Press it against surface of crystal by turning down on knob. The tightening works the same way as a gasoline tank cap on an automobile—it begins “ratcheting” when it can be tightened no further.
 - b) For Liquid Samples: Apply a drop or two of the liquid to cover the crystal. Place some kind of cover (such as a bottle cap) over the liquid if it evaporates quickly. Do not use the knob.
5. To get an Absorption Spectrum of your Sample:
 - a) CLICK “**COL SMP**” (third icon from the left on upper menu bar)
 - b) Enter a spectrum title (e.g. Your name or group number and a sample description or Unknown number), then click **OK**
 - c) A single acquisition will occur, resulting in the display of an absorbance spectrum.
 - d) CLICK “**START COLLECTION**” (above upper right corner of displayed spectrum).
 - Eight acquisitions (i.e. 8 scans) will occur, counted off below the lower left corner of the spectrum.
 - e) After eight acquisitions a pop-up confirmation box appears in the upper left of the screen: **CLICK “YES”**
6. TYPE “CONTROL T” to convert the displayed absorption spectrum (peaks pointed up) to a transmittance spectrum (peaks pointed down).
7. To label each peak with its wavenumber: CLICK ON “**FIND PKS**” (Icon towards the middle of the upper menu bar)
 - a) A horizontal line (the “threshold”) will appear. Only peaks below the line will be labeled with the wavenumber of the absorption. Adjust the horizontal line’s position by clicking above it to label more peaks or click below it to label few peaks.
8. CLICK “**REPLACE**” (above upper right corner of spectrum). This will replace the original spectrum (w/o the peaks labeled) with one that has the peaks labeled with their wavenumbers. (Forgetting to click “replace” will result in a spectrum without the peaks labeled with their wavenumber when you print the spectrum!)
9. TYPE “CONTROL F” to rescale the y-axis so that all labeled peaks will appear when printing..
10. To Save the spectrum: CLICK ON “**SAVE**” ICON and a pop-up box will appear
 - a) CLICK “**SET FILENAME TO TITLE**”
 - If you want to open the file on another computer: CHOOSE **.TIF FILE FORMAT** and then save to an appropriate drive.
 - If you want to open the file again with OMNIC software: CHOOSE **.SPA FILE FORMAT** and then save to an appropriate drive
11. To Print the spectrum: Select “**REPORT**” (on the top menu bar) → Select “**AUTO REPORT OPTIONS**” → TYPE your name or group ID after “**COMPANY NAME**” → Enter you unknown number or your compound’s name after “**REPORT TITLE**” → Click “**OK**” → Select “**REPORT**” again on the top menu bar) → Select “**PREVIEW/PRINT AUTOREPORT**”
12. To clean the crystal, wet a tissue with acetone (or an appropriate solvent) and wipe the crystal clean. Now wet a new tissue with DI water and wipe the crystal clean.
 - a) Do NOT spray acetone or other solvents directly on the crystal!!
 - b) Keep the acetone bottle far away from the instrument as it will damage the plastic housing!
13. Keep the area around the instrument and computer spotlessly clean!

Instructional videos: <https://www.youtube.com/watch?v=YgzAbqs41oU>
<https://www.youtube.com/watch?v=nKEVgroJL0I>

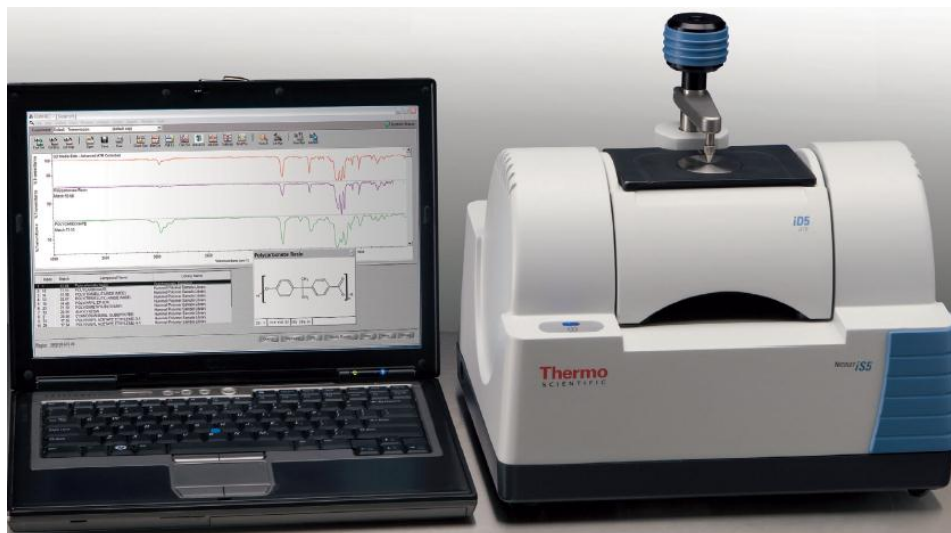
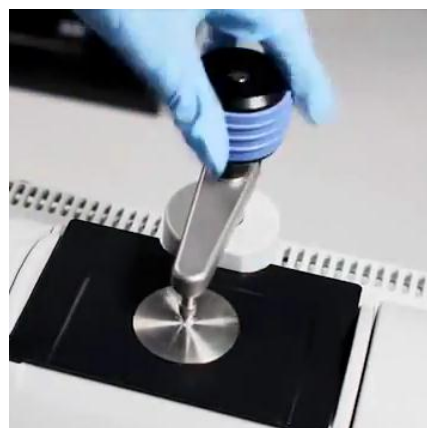


Figure 1. Thermo Scientific’s iS5 FT-IR Spectrometer and laptop with OMNIC analytical software is capable of identifying unknown chemicals (e.g. forensic use), product quality control and much more.

Loading a Solid Sample on the iS5 FT-IR Spectrometer



Figures 2 and 3. Place a solid sample on crystal surface and then press it against surface of crystal by turning down on knob. The tightening works the same way as a gasoline tank cap on an automobile—it begins “ratcheting” when it can be tightened no further.

Loading a Liquid Sample on the iS5 FT-IR Spectrometer

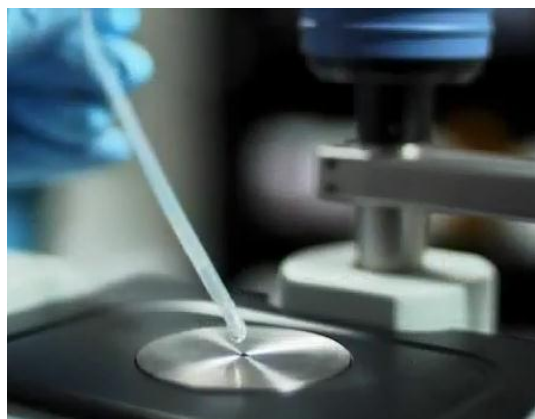


Figure 4. Apply a drop or two of the liquid to cover the crystal. Place some kind of cover (such as a bottle cap) over the liquid if it evaporates quickly. Do not use the knob.