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Find the *Spectra-Tech Nic-Plan* at our website: ***Click HERE***

- **Never put papers or other items on the back ledge of the instrument cabinet. The IR will quickly overheat.**
- **The microscope optics must be carefully aligned manually before use. Your instructor will verify the alignment.**

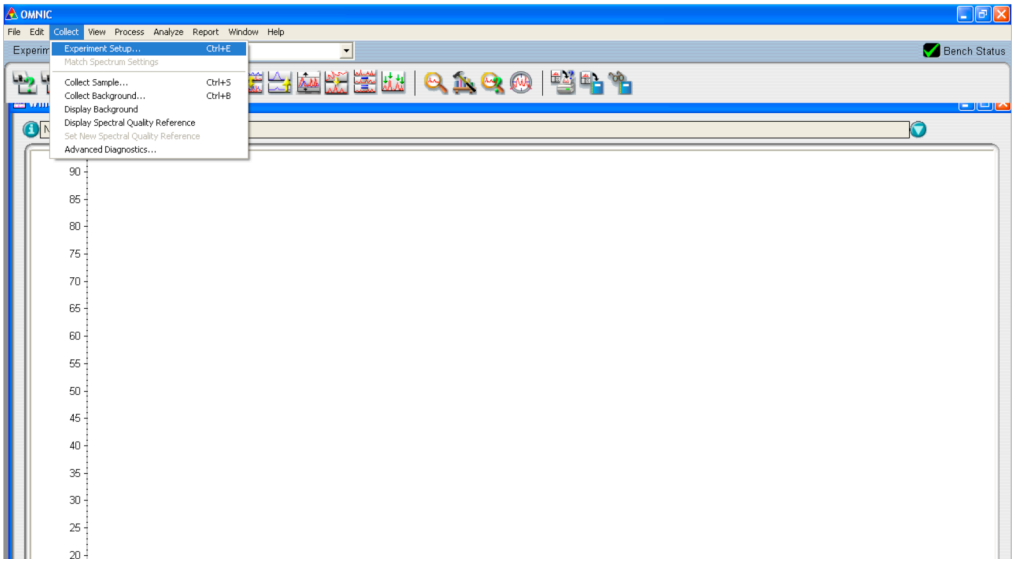
1) USE PROTECTIVE INSULATED GLOVES and SAFETY GOGGLES when handling liquid nitrogen. Fill the microscope Dewar chamber with liquid N_2. Open the flip top, and slowly pour in liquid nitrogen from a 250 mL silvered Dewar. When first beginning to fill, pour in only enough liquid nitrogen to fill the funnel (you will see it start to bubble against the plastic screen), and then stop pouring for at least 60 seconds and let that amount drain down the funnel. Repeat this two or three more times to fully cool down the funnel and tubing system. Then slowly pour the rest of the liquid nitrogen into the funnel making sure to never overflow the funnel. It will require about 750 mL (about three small Dewars) to fill the chamber. This should allow the microscope to run for about 8 hours.

2) Turn on the **main power switch** (black rocker switch on the back of the **<u>microscope</u>**, not the IR itself).

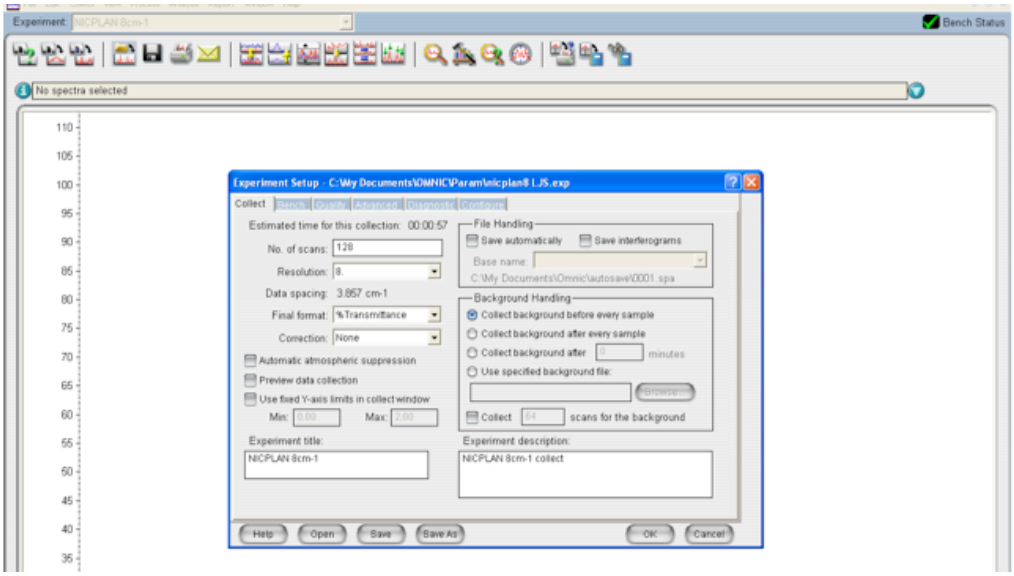
3) Boot the computer.

4) Launch the OMNIC software using the desktop icon.

[NOTE: the response time of the computer is very slow.]



3) Click **Collect/Experiment Setup**… (above), which will bring up the following screen.

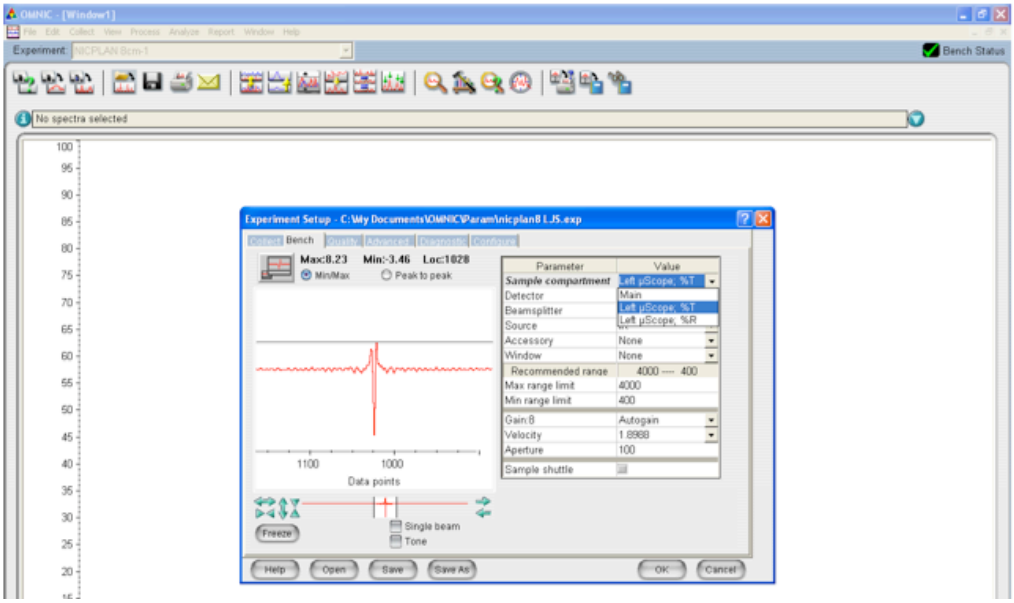


4) Under the Collect Tab, click the **Open** button and select the method called **nicplan8 LJS** that contains settings appropriate for the IR microscope.

5) Under the Bench Tab, verify these settings:

Sample compartment => Left µScope %T (transmission) or %R (reflection)
Detector => MCT-B
Beamsplitter => KBr
Source => IR
Accessory => None
Range => 4000-400 cm^{-1}
Gain => Autogain

Verify the interferogram in the left-hand window, with an amplitude in the range of about +/- 8 to 3 depending on what is in the microscope field.



6) If the interferogram is weak, the microscope optics are probably misaligned. Consult your instructor.

7) Click the OK button at the bottom of the Experiment Setup window.

8) Using the mechanical stage controls, move the sample slide to an area not covered by the sample. To verify the field of view, press the **View** button on the microscope base. For a substrate that reflects some light, turn up the intensity on the *upper lamp* (right-hand roller knob at front base of microscope). Through the eyepieces, you should see a **blue** rectangle illuminating the substrate. Focus the microscope to get the clearest rectangle, although it will not be super-sharp because the IR optics aren't optimal for visible light. When finished focusing, turn down the lamp intensity again.

   To verify a clear path through the pinhole on the slide, turn up the intensity on the substage lamp (left-hand roller knob) and look for the **green** rectangle.

   When finished aligning the slide, always turn down both lamps.

9) From the Collect menu, select **Collect Sample** (see step 2). The instrument will notify you that it is about to collect a background spectrum; click **OK**.

10) When finished collecting the background, the instrument will notify you to insert your sample. Again push the **View** button and turn up the lamp intensity. Turn the "Upper Aperture View" knob to the right of the eyepieces to the down position. You will see a blue spot projected onto the slide surface. Use the mechanical stage controls to move the sample under the microscope objective so that the blue spot is on the sample area you wish to study.

11) When finished using the instrument, go to Collect/Experiment Setup…, click the **Bench Tab**, and set the Source to OFF.

12) Turn off the **main power switch** (black rocker switch on the back of the **microscope,** not the IR itself).

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