FTIR SOP

I. Start Up

1. Sign in the logbook.
2. Check if the power is ON. If it is off, switch it **ON** and let the instrument stabilize for at least 15 minutes.
3. Check the purge and make sure the pressure regulator is set between 20 and 40 psi. The flowmeter should approximately read **30** scfh.
4. Install the accessory (Smart Performer, Praying Mantis, PIKE Multibounce ATR) that you need. Consult the laboratory technician (5-7671) if you do not know how to install the accessory.
5. Open the software by clicking the <**OMNIC>** icon on the window desktop.
6. Choose the correct accessory (Smart Performer, Praying Mantis, PIKE Multibounce ATR) on the <**Experiment**> drop-down list box.
7. If you are using the Smart Performer (solid samples), go to step 8; if you are using the PIKE Multi-Bounce ATR (liquid samples), skip to step 24; if you are using the Praying Mantis (powder samples), skip to step 40.

II. Collecting the Spectra

Smart Performer

8. Remove the ear flops and the FTIR cover to install the Smart Performer.
9. From the main menu, click on <**Collect**> and go to <**Experimental Setup**>.
10. Set the number of scans and resolution (normally, scan=64 and resolution=4).
11. From the same <**Experimental Setup**> folder, go to <**Diagnostic** > and record the Max, Min, and Loc on the logbook.
12. Close the <**Experimental Setup**> dialog box.
13. Click the <**Collect Bkg**> from the toolbar and the <**Start Collection**> button to collect the background.
14. Load your sample in the sample holder.
15. Adjust the pressure device until the pressure reach **4**.
16. Click <**Collect Sample**> from the toolbar. Write your sample title on the Collect Sample window and hit **OK**. Click on the <**Start Collection**> button.
17. When the sample collecting window shows up, adjust the pressure device until in reaches **12** unless when working with very hard materials like sand.   Contact the laboratory technician when in doubt.
18. When the data collection is finished, a message asks whether you want to add the spectrum to a spectral window. Choose <**yes**> to add, <**no**> to end the procedure, and <**more scans**> to let you return to the collect sample window.
19. Save the spectrum by clicking it.
20. Choose <**Save As**> from the file menu.
21. Clean the accessory by wiping the tip of the pressure device with a paper towel.
22. Remove the crystal sample station and gently dump the sample in a wax sheet of paper.
23. Wet a soft paper towel with DI water and dab the crystal gently. Avoid scratching the crystal. Sit the sample station back to the sample holder. Go to step 56 for shut down procedures.

PIKE MultiBounce ATR

24. Attach the purgeline to the accessory and align the accessory.
25. Choose the type of trough plate that you want to use (ZnSe or GeSe; consult the laboratory technician if in doubt).
26. Use DI water to collect your background.
27. Be careful not to scratch the crystal when putting DI water into the trough plate (it is not advisable to use glass pipet).
28. From the main menu, click on <**Collect**> and go to <**Experimental Setup**>.
29. Set the number of scans and resolution (normally, scan=64 and resolution=4).
30. From the same <**Experimental Setup**> folder, go to <**Diagnostic** > and record the Max, Min, and Loc on the logbook.
31. Close the <**Experimental Setup**> dialog box.
32. Click the <**Collect Bkg**> from the toolbar and the <**Start Collection**> button to collect the background.
33. Drain the DI water from the trough plate and dab the crystal with soft paper towel. Avoid scratching the crystal.
34. Load your liquid sample carefully into the trough plate as you did with the DI water.
35. Click <**Collect Sample**> from the toolbar. Write your sample title on the Collect Sample window and hit **OK**. Click on the <**Start Collection**> button.
36. When the data collection is finished, a message asks whether you want to add the spectrum to a spectral window. Choose <**yes**> to add, <**no**> to end the procedure, and <**more scans**> to let you return to the collect sample window.
37. Save the spectrum by clicking it.
38. Choose <**Save As**> from the file menu.
39. Unload the sample and clean the trough plate by following step 33. Go to step 56 for shut down procedures.

Praying Mantis

40. Attach the purgeline to the accessory and seal the sides of the Praying Mantis. Do not attempt to close the cover of the FTIR instrument.
41. Remove the tape on the mirror plate and insert the mirror plate into the specimen chamber (slanted mirror should face the inside of the instrument) of the instrument.
42. From the main menu, click on <**Collect**> and go to <**Experimental Setup**>.
43. Set the number of scans and resolution (normally, scan=64 and resolution=4).
44. From the same <**Experimental Setup**> folder, go to <**Diagnostic** > and record the Max, Min, and Loc on the logbook.
45. Close the <**Experimental Setup**> dialog box.
46. Click the <**Collect Bkg**> from the toolbar and the <**Start Collection**> button to collect the background.
47. Remove the mirror plate from the specimen chamber and return the tape onto the mirror plate.
48. Prepare your sample by mixing it with KBr (usually 1:10 or 1:20). Use a mortar and pestle to grind the sample and KBr at the same time. This would give you uniform sized particles for the sample and KBr powder.
49. Place the sample powder onto the sample holder and use a spatula to level the top.

50. Insert the sample holder into the specimen chamber.
51. Click <**Collect Sample**> from the toolbar. Write your sample title on the Collect Sample window and hit **OK**. Click on the <**Start Collection**> button.
52. When the data collection is finished, a message asks whether you want to add the spectrum to a spectral window. Choose <**yes**> to add, <**no**> to end the procedure, and <**more scans**> to let you return to the collect sample window.
53. Save the spectrum by clicking it.
54. Choose <**Save As**> from the file menu.
55. Remove the sample holder from the specimen chamber and clean it thoroughly using a soft paper towel.

III. Shut Down

56. It is recommended that you keep the instrument ON at all times. Leaving the system ON keeps it stable and gives you the most consistent results.
57. Close the **OMNIC** software and log off from the computer.
58. Sign out in the logbook.