

Name of Procedure:

Infrared Spectroscopy
Nicolet Impact 410 and AVATAR OMNIC Software

Suggested Uses:

To collect qualitative or quantitative data for the identification of controlled and noncontrolled substances.

Apparatus Needed to Perform Procedure:

Nicolet Impact 410 Fourier Transform Infrared Spectrophotometer
Nicolet Avatar Fourier Transform Infrared Spectrophotometer
PC with a suitable printer/paper
OMNIC
software
Microsoft Windows
Polystyrene film (std)
Potassium bromide (infrared grade)
Potassium bromide salt plates
Stainless steel vial and ball
KBr pellet die (13mm)
Hydraulic press
Pellet Holder
Vacuum pump and tubing
Wiggle bug or agate mortar and pestle
Spatula
Oven
Thermometer

Calibration Procedure:

Obtain a spectrum of polystyrene each month with the following wavenumbers marked:
2849 cm^{-1} , 1942 cm^{-1} , and 906 cm^{-1} .

Note: The monthly calibration IR polystyrene scan will be filed and maintained by the IR Coordinator as set forth in the Drug Chemistry Policy and Procedure Manual.

Application of Procedure on Evidence:

1. Before using the Nicolet OMNIC software program that is compatible with the instrument, **read and become familiar** with the operating manuals provided with each. **This procedure is not a substitute for the manuals.** For more detailed information, read the manuals provided with the instrument and the OMNIC software.
2. **OBTAINING YOUR BACKGROUND SPECTRUM:** In your Program Manager, click , with your left mouse button, to reduce HP Printer screen . Click twice again on OMNIC with your left mouse button. Click once on the Background icon on your tool bar. A scan menu will show up on the screen, click NO.
3. Using the tip of your spatula, obtain an amount of sample and KBr in the ratio of 1:100. Place the sample amount and the KBr into a clean wiggle bug and place in the amalgamator for approximately 5 seconds. Empty the powder from the wiggle bug into the die. Press the pellet in the pellet press under approximately 7 tons of pressure, pulling the hand lever approximately 5-7 times. Release the pressure, disassemble the die, and remove the pellet. Place the pellet in a pellet holder and begin the scan.
4. **OBTAINING YOUR SPECTRUM:** In OMNIC, click on the Scan icon. This icon looks like a chromatogram. An info box will appear for the case number. On the Memo line, you may enter any additional information printed on the hard copy of the spectrum (date, item # etc.). Now click once on "OK".
5. **PRINTING YOUR SCAN:** Click once on the printer icon on the toolbar. Click on "OK" and wait for the hard copy of the spectrum.

Safety Concerns:

Make sure capsule is **firmly seated** in Wig-I-Bug before operating apparatus. **Do not exceed** 10 tons of pressure in the pellet press. Read manufacturer's instructions and warnings before operating the Wig-L-Bug or pellet press.

Literature References:

OMNIC: User's Guide, Microsoft Publications, 1985-1991.

Moffat, A. C. Ed., **Clarke's Isolation and Identification of Drugs**, 2nd. Ed., The Pharmaceutical Press, 1986.

Mills, III, Terry and Roberson, Conrad J., **Instrumental Data for Drug Analysis**, 2nd Ed., Vols. 1-5, CRC Press, Inc., 1993.

Silverstein, R. M. And Brassler, Clayton, G., **Spectrometric Identification of Organic Compounds**, New York, Wiley, 1991.

Keller, Roger, **The Sigma Library of FT-IR Spectra**, Edition 1, Vol. 1 and 2, Sigma Chemical Company, Inc., 1986.

Pouchert, Charles J., **The Aldrich Library of Infrared Spectra**, Aldrich Chemical Company, 1981.