

illuminatIR Training

Danbury, CT

March 3-5, 2009

To register for the class please contact Chantel Javois at Chantel.Javois@smithsdetection.com or 203-207-9778.

Location: Smiths Detection
21 Commerce Drive
Danbury, CT 06810

Class time: 9:00am-5:00pm

Agenda :

1. Introduction
2. Microscopy Fundamentals
 - Light Microscope
 - Discussion of optics
 - Illumination system
 - Condensers
 - Light Microscope Objectives and Eyepieces
 - Microscope Alignment
3. Infrared Microprobe Analysis
 - Light Microscope
 - Why Use an Infrared Microprobe?
 - Types of infrared microprobe objectives
 - i. All-Reflecting objective (ARO)
 - ii. Attenuated-total-reflection ATR) objective
4. Software Introduction
 - Hardware Description
 - SynchronizIR Software
 - Camera Software
 - GRAMS Software
 - Acquiring a Sample Spectrum
 - i. ARO Objective

- ii. ATR Objective
- Spectral Quality
 - i. Identifying Quality Spectra
 - ii. Spectral Artifacts

5. Sample Preparation

- Preparation of samples for microscopic examination
 - i. Dry mounts
 - ii. Mounts in different oils
 - iii. Dispersion in KBr
- Preparation of samples for infrared microprobe analysis
 - iv. Reflection-Absorption Spectroscopy
 - v. ATR Spectroscopy
- Collect three spectra for use on day two with no libraries for comparison
 - vi. Long Chain Hydrocarbon
 - vii. Functional-group variation of a long-chain hydrocarbon
 - viii. carbonyl-containing compound

6. Data Analysis

- Spectroscopy Fundamentals
 - i. Infrared Spectroscopy
 - ii. Generating an Infrared Spectrum
- Instrument Calibration and Performance Check
 - i. What checks are performed
 - ii. Reports Generated
- Spectral Interpretation
 - i. Spectral Quality
 - ii. Functional Groups
 - iii. Characteristic Absorption Regions
 - iv. Recognizing Common Spectra
- Optical Microscopy
- Run more samples
 - i. Nylon
 - i. Gelatin
 - ii. Aromatic (Benzoic Acid, polystyrene)

7. Software Topics

- Software Setup
 - i. Methods, Instrument Parameters
 - ii. Infrared Spectroscopy
 - iii. GRAMS Data Manipulation Utilities
- Library Maintenance
 - i. Library Setup

- ii. Library Searching
- iii. ATR and ARO Searching
- iv. ATR Correction
- v. Spectral ID (SPECID) Software
- Mixture Analysis
- User Specific Applications

HOTEL INFORMATION

Smiths Detection - Danbury has a corporate rate of \$125.00 a night available at the Courtyard Marriott. Please be sure to mention Smiths Detection to receive this rate.

Danbury Courtyard Marriott
3 Eagle Road
Danbury, CT 06810
1-203-730-2228

<http://www.marriott.com/dpp/PropertyPage.asp?MarshaCode=DXRCY>

Smiths Detection - Danbury has a corporate rate of \$109.00 a night available at the Danbury Holiday Inn. A buffet breakfast is included. Please be sure to mention Smiths Detection to receive this rate.

Danbury Holiday Inn
80 Newtown Rd
Danbury, CT 0681
1-203-792-4000
1-888-452-5772

<http://www.danburyholidayinn.com/>

Directions to the Hotel:

From 84 East:

- Take Exit 8
- At the light take a right
- At the 2nd traffic light take a right onto Eagle Road.
 - Take your first left into The Holiday Inn.
 - The Courtyard Marriott is on your right.

From 84 West:

- Exit 8 – continue straight onto Newtown Road– get into middle lane
- At the 4th set of lights take a right onto Eagle Road.
 - Take your first left into The Holiday Inn.
 - The Courtyard Marriott is on your right.

Directions to Smiths Detection

From 84 East:

- Take Exit 8

- At the light take a right
- At the 2nd traffic light take a right onto Eagle Road.
- Take your first left onto Commerce Drive.
- We are the last building on the left number 21.

From 84 West:

- Exit 8 – continue straight onto Newtown Road– get into middle lane
- At the 3rd set of lights take a right onto Eagle Road.
- Take your first left onto Commerce Drive.
- We are the last building on the left number 21.

From the Holiday Inn

- Take a left out of the parking lot.
- Take your first left onto Commerce Drive.
- We are the last building on the left number 21.

From the Courtyard Marriott

- Take a right out of the parking lot.
- Take your first left onto Commerce Drive.
- We are the last building on the left number 21.

Airports:

Bradley International Airport (BDL) Hartford, CT
Westchester County Airport (HPN) White Plains, NY
LaGuardia Airport (LGA) Queens, NY
John F. Kennedy Airport (JFK) New York, NY