



## Infrared Spectroscopy

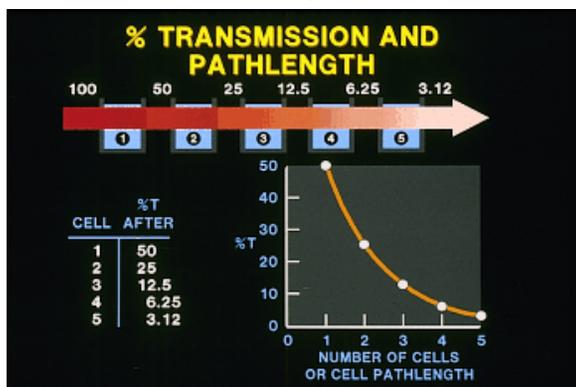
Video-based training programs

### Principles of Infrared Quantitative Analysis

#### IR-101

This program first discusses the Beer's Law basis for quantitative absorption spectroscopy. It considers choice of band, solvent, concentration, pathlength, baseline and calibration curve. Next,

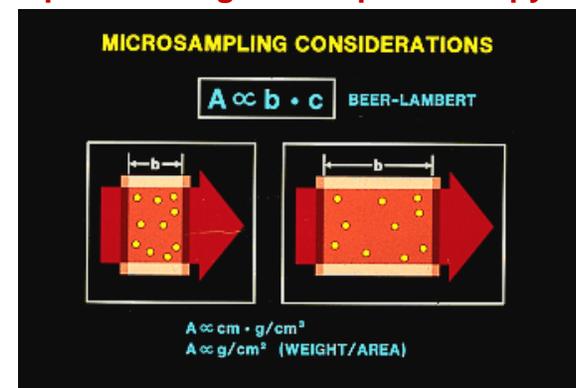
measurement errors are classified as physical, chemical or instrumental and their effects on precision and accuracy considered. Single and multi-component analyses are discussed and an actual 5 component solvent mixture is analyzed using computer matrix methods. 41 minutes.



### Techniques of Solid Sample Handling for IR Spectroscopy

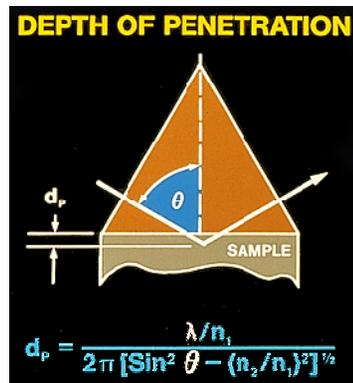
#### IR-102

Infrared spectroscopy permits the analyst to select from a wide variety of sample preparation techniques. For crystalline solids, these include solution, powder suspensions, smears, mulls and pellets. Powder sampling techniques are considered in detail. Step by step instructions are given for preparing mulls and pellets; the two techniques are compared. Particular attention is given to the preparation of micro-pellets. This program teaches the analyst to recognize and avoid common faults in preparing solid samples. 36 minutes.



### Infrared Internal Reflectance Spectroscopy

#### IR-103



Internal reflectance spectroscopy (IRS), also known as ATR, FMIR, and MIR, is a popular technique for polymers, coatings, optically opaque materials and on-stream liquid analysis. This program first defines the various types of reflectance: diffuse, specular and internal. Next, the origin of internal reflectance spectra is clearly explained and critical parameters reviewed. Various types of IRS crystal materials and apparatus are discussed and compared. 38 minutes.

### Computerized Infrared Spectroscopy: FT-IR and Dispersive

#### IR-104

This program presents an overview of the capabilities of a computerized IR spectrometer, either dispersive or FT-IR. "Housekeeping" tasks include selection of scales, plotting routines, annotation and spectral formats. Computer enhancement techniques cover signal averaging, smoothing, calibration and baseline correction methods. Various aspects of spectral subtraction are discussed in detail and numerous illustrations are provided. The program concludes with techniques of mixture analysis and search/identification routines. 47 minutes.

