傅立葉轉換紅外線光譜分析儀

Fourier Transform Infrared Spectrometer(FTIR)

Model：NicoLet iS10（Thermo）

一、測試目的：

1.研究分子結構及鑑定化合物與官能基。

二、特殊功能：

1.可測定 4000～650 cm-1紅外光區之圖譜（使用高感度MCT Detector）。

2.具ATR附件（Attenuated Total Reflectance），可測定樣品表面之圖譜。

3.具溫控裝置之加熱式可拆液體樣品槽。

4.偏光片（manual KRS-5 Polarizer）。

三、樣品準備須知及注意事項：

1.固態樣品可與 KBr 粉末以適當比例混合，打成錠片後，夾於兩鹽片間測其光譜。

2.低揮發性之液體樣品可逕滴於兩鹽片間(NaCl)，仿照固態樣品方式測試。含水份之樣品應選用不潮解之 Window materials (如 AgCl)。

3.高揮發性之液體樣品可使用適合液態樣品測定之Liquid sampling cell。

4.物質表面之分析，可使用ATR(Attenuated Total Reflectance)測量附件。

四、限制：

1.進行測定時，Background 圖譜之水氣含量宜在 10 % 以下，所得之FTIR 圖譜才較理想。

2.人員應避免頻繁進出分析室，以免過多之 CO_2 及 H_2O 影響所得之FTIR 圖譜。

五、使用方法：

1.系內使用以登記申請，由專責技術員指導自行分析為原則。

2.系外單位使用，須經登記申請，並經系主任及負責老師同意後，方可使用。

六、負責老師：黃延吉

Fourier Transform Infrared Spectrometer(FTIR)

Model：NicoLet iS10 (Thermo)

I. Purpose:

1. Research on molecular structure.
2. Identification of compounds and functional groups.

II. Features of the equipment:

1. Can be measured 4000 ~ 650 cm^{-1} IR region of the spectrum. (high-sensitivity MCT Detector).
2. With ATR attachment (Attenuated Total Reflectance), the spectrum of sample surface can be measured.
3. With removable liquid sample cells equipment with temperature control device.
4. Polarizing film (manual KRS-5 Polarizer).

III. Sample preparation instructions and precautions:

1. Solid sample mixed with KBr powder in an appropriate mixing ratio (e.g.1:100) pressed into a tablet and sandwiched between two salt plates prior to the measurement by FTIR.
2. A drop of low volatility of liquid samples can be sandwiched between two pieces of salt plates (NaCl), similar to the preparation of solid samples. For samples of aqueous solution without deliquescence of non-hygroscopic window materials, such as AgCl.should be used. Do not use salt plates, such as NaCl and KBr.
3. For highly volatile liquid samples, liquid sampling cell is available to be used.
4. The ATR (Attenuated Total Reflectance) measuring attachment can be used for the analysis of the material surface.

IV. Restrictions:

1. Background spectrum of the water should be kept below 10% in order to get satisfactory FTIR spectrum.
2. Frequent entry and exit of the FTIR room should be avoided so as to avoid excessive f CO_2 and H_2O contents from the atmosphere adversely influencing the FTIR spectrum of the sample.

V. Application:

1. Registration for application in advance is required. Users are required to operate the instrument themselves.
2. For users outside the department, application should be signed by the chairman of the Chemical Engineering Department and the professor-in-charge for the FTIR.

VI. Professor-In-Charge: Yan-Jyi Huang (黃延吉)