Analysis Instrument Project Application Proposal

Project name:	The Application of Infrared Technology in the Identification of Textile Fibers (Textiles, Inspection, and Quarantine)

Instrument and Testing Conditions

Main Unit:

FTIR-8600 Fourier Transform Infrared Spectrometer;

Testing Conditions:

Scan Conditions: 4 cm^{-1}, 32 scans

Spectral Range: 4000–400 cm^{-1}, 4000–600 cm^{-1}

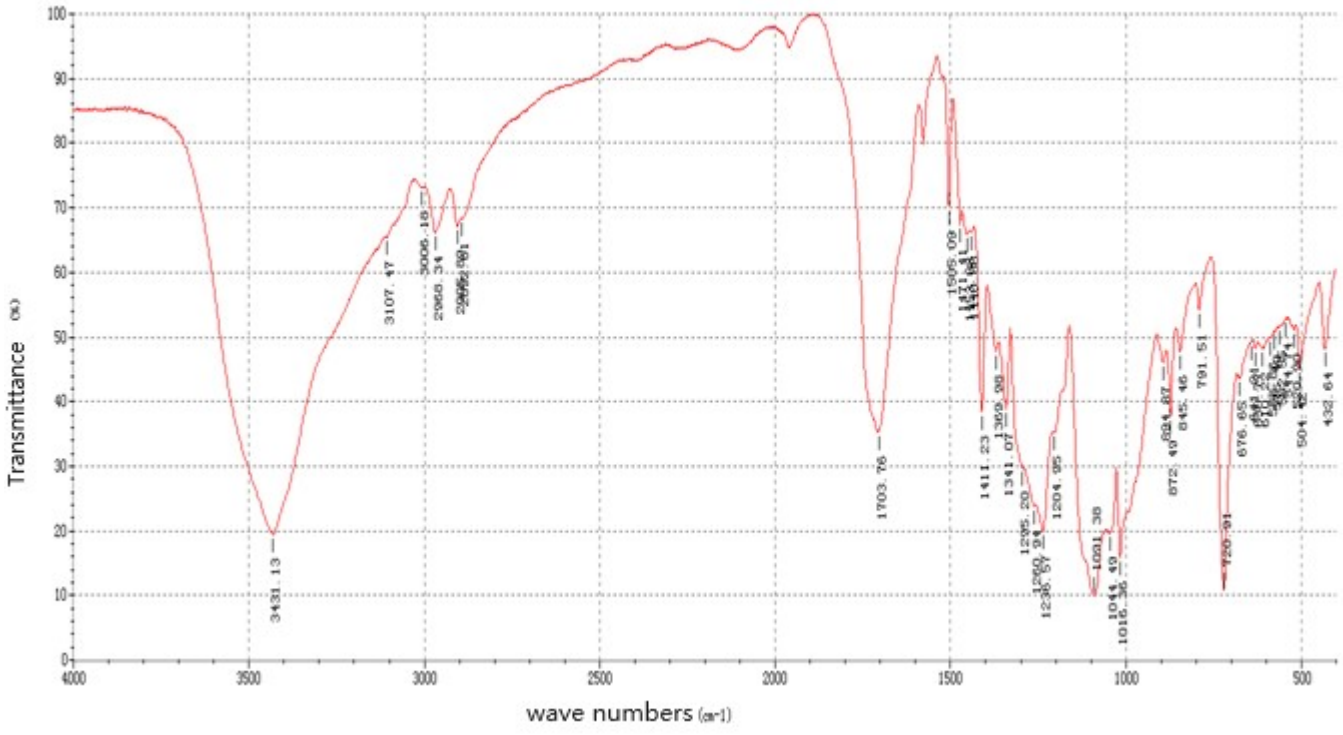
Testing Methods: Transmission, ATR (Attenuated Total Reflectance)

Sample Preparation: Pellet Method

Infrared Accessories: Conventional Solid Sample Kit (Potassium Bromide Pellet), Single Reflection ATR Accessory (Zinc Selenide Crystal, 45° Incidence)

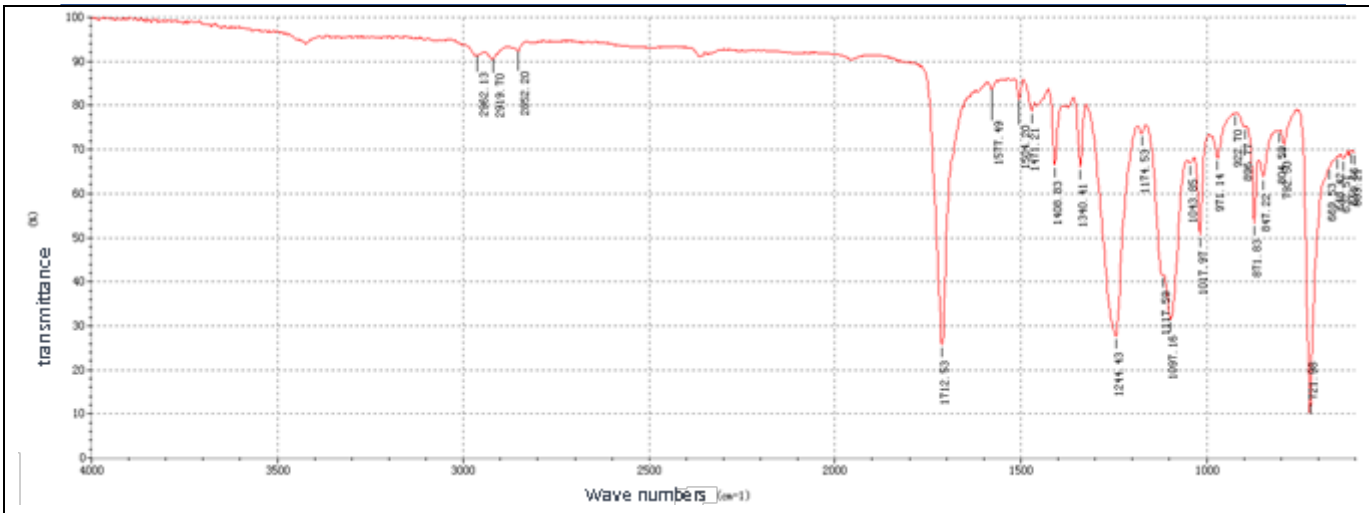
Spectrum Testing:

Polyester Fabric - Transmission (Transmission Method)

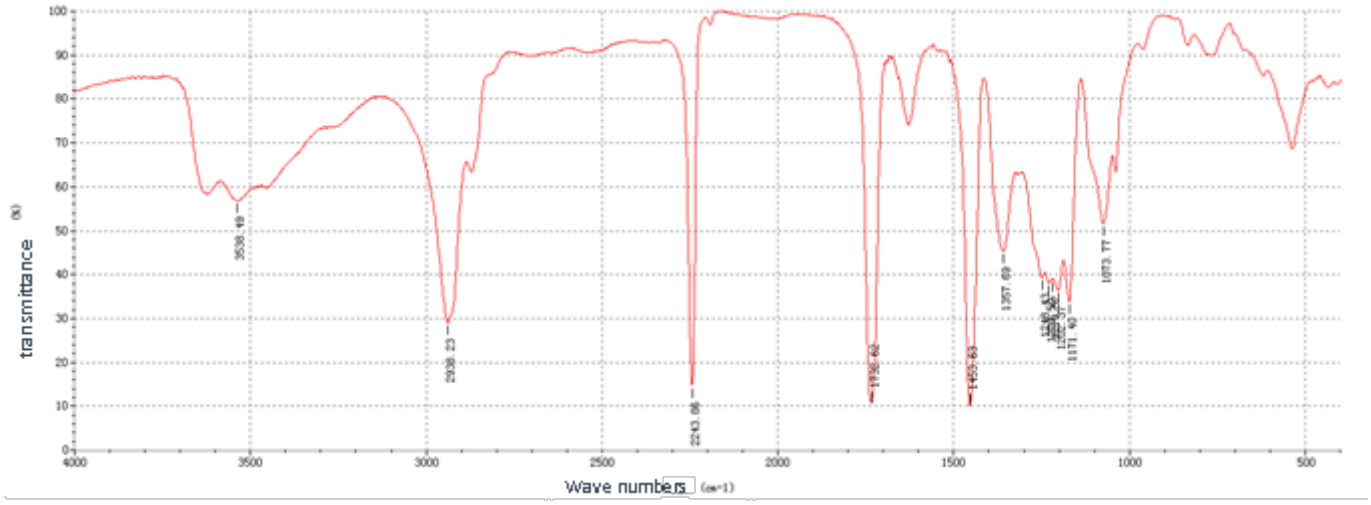


Polyester Fabric - Transmission (ATR Method)

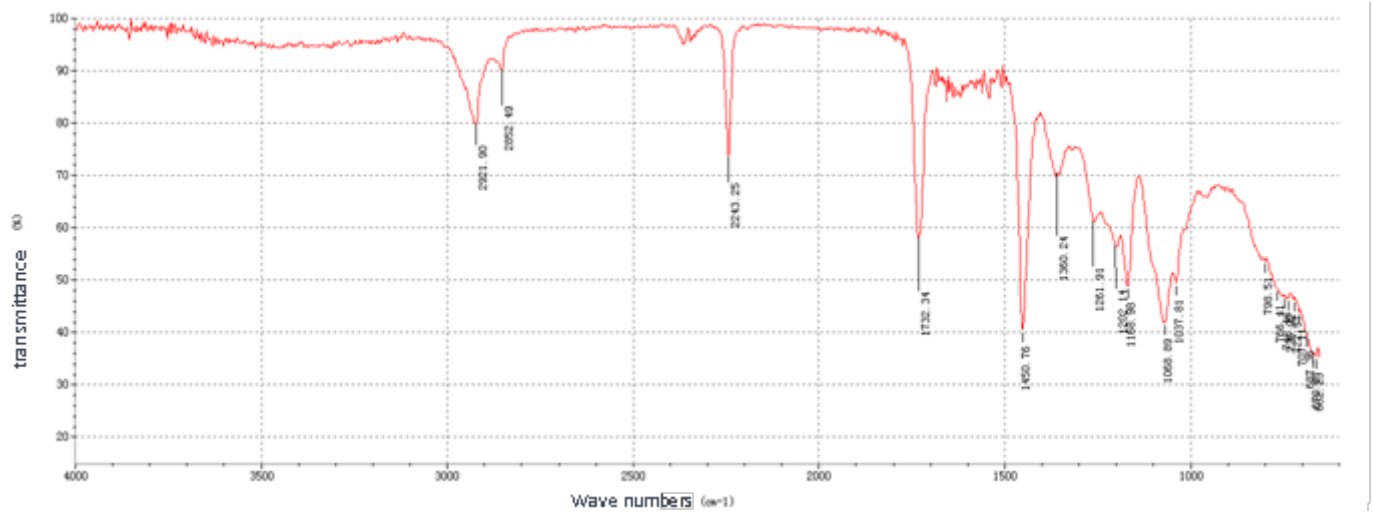
Lambda Scientific Pty Ltd
29 Deloraine Road, Edwardstown, SA 5039, Australia
Phone: +61 8 83740639 E-Mail: info@lambdasci.com.com www. lambdasci.com



Acrylonitrile Fabric - Transmission (Transmission Method)

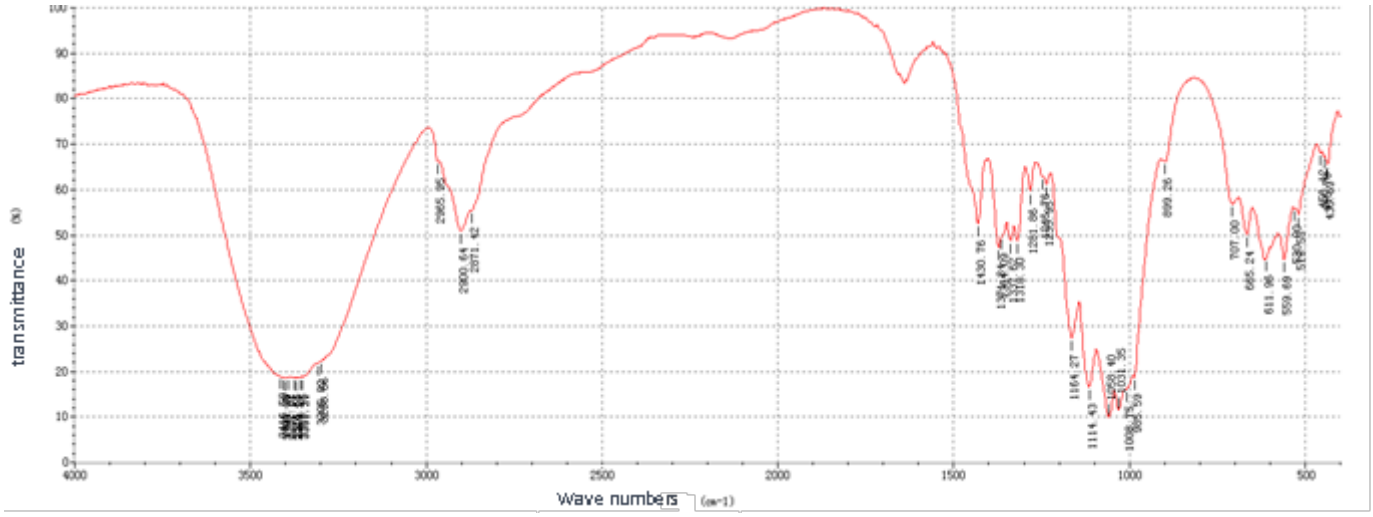


Acrylonitrile Fabric - Transmission (ATR Method)

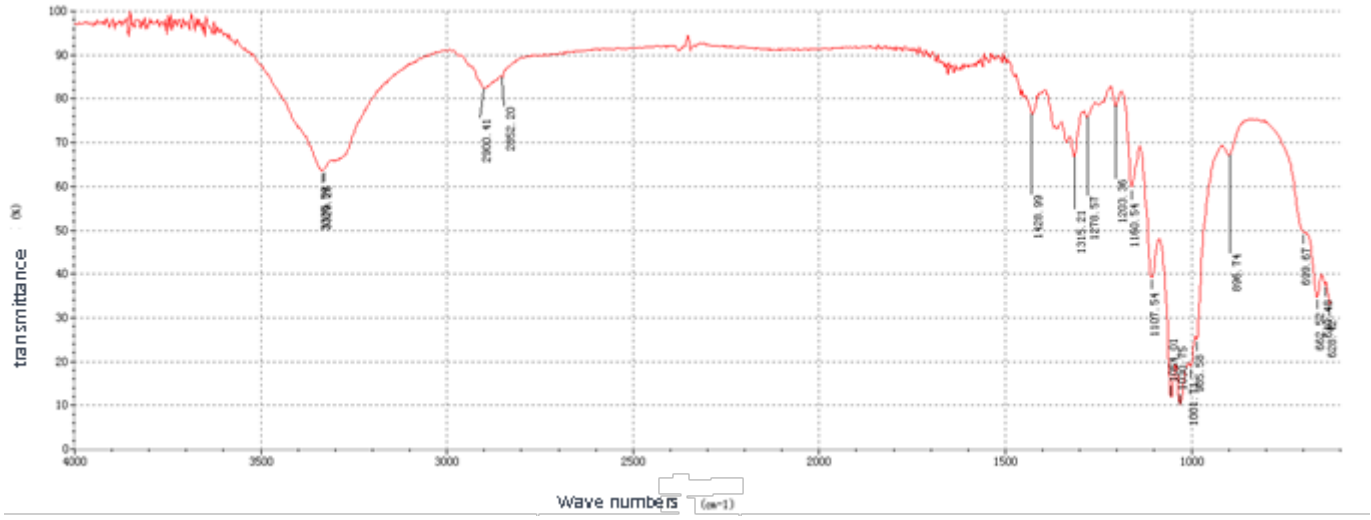


Lambda Scientific Pty Ltd
29 Deloraine Road, Edwardstown, SA 5039, Australia
Phone: +61 8 83740639 E-Mail: info@lambdasci.com.com www. lambdasci.com

Cotton Fiber Fabric - Transmission (Transmission Method)



Cotton Fiber Fabric - Transmission (ATR Method)



Results Explanation

By comparing the spectra obtained from the two methods, it is observed that the transmitted light method provides more comprehensive spectral information. For samples with a small quantity of fibers, the transmitted light method can capture more infrared details. Therefore, the sample preparation using the transmitted light method is more suitable for the qualitative identification of textile fibers.