



TENNESSEE BUREAU OF INVESTIGATION

Forensic Services Division

Microanalysis Quality Assurance Manual FTIR Quality Assurance Policy

Quality Assurance for the Fourier Transform Infrared Microscope Spectrometer

1. Introduction

The Fourier Transform Infrared Spectrometer (FTIR) instrument maintenance records will be checked before each use to determine if the instrument has been checked for performance in the last 30 days. If this has not been done, then that examiner must perform the Performance Check before proceeding. This does not mean that the instrument must be checked every month.

The following instrument checks must be performed on the FTIR microscope. The generated spectra and reports will be maintained in the FTIR maintenance records. The tests will always be run in transmission mode only.

2. Thermo Nicolet iS 50 FTIR/Continuum Microscope with MCT/A Detector

From Experiment Setup, click the Diagnostic tab, then click Align button. Exit when completed.

From System Status, run Performance Verification. The program automatically tests for noise, wavenumber position, and throughput. Generate and maintain a report.

From Advanced Diagnostics, run the following three Performance Tests:

Main-DTGS KBr

ATR-DTGS KBr

uScope-MCT/A-KBr-%T (requires 100um pinhole and 15X objective)

Generate a report after completion of all three tests.

Run polystyrene standard on the microscope for wavenumber positions.

Generate a Find Peaks spectra and observe the following peak wavenumbers: 3082, 3060, 3026, 2849, 1943, 1601, 1028, and 906. The bands will not vary more than +/- 2 wavenumbers.

3. Conclusion

If at any time during this procedure the FTIR does not pass the Performance Test, the procedure will be restarted. If the instrument still does not pass, take the instrument out of service and consult with Unit Supervisor about next steps.



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Any instrument malfunctions or maintenance problems will be documented in the FTIR maintenance records. If repair documentation is received from service engineers, they will also be maintained in the FTIR maintenance records.