



## TECHNOLOGY DEPLOYED IN MATC

## FOURIER TRANSFORM INFRARED (FTIR)

Identify and quantify various components, such as lime, polymers, and potential contaminants.

## **HOW IT WORKS**

The Fourier Transform Infrared Spectroscopy (or FTIR), is a powerful analytical technique that uses infrared radiation to identify and quantify the chemical bonds in a material, providing detailed information about its molecular structure. The FTIR spectrometer directs a beam of infrared radiation through the sample. As the infrared light interacts with the sample, the device measures the specific wavelengths of light absorbed by the material. This produces a unique spectrum, a graphical representation of the material's infrared absorption at various wavelengths. The spectrum acts as a chemical fingerprint, revealing the composition of the sample in intricate detail. The resulting spectrum displays a series of absorption peaks, each corresponding to different chemical bonds within the sample. These peaks are analyzed to identify and quantify various components, such as lime, polymers, and potential contaminants. By interpreting these peaks, technicians can determine the precise chemical structure and composition of the paving material. By providing a clear and detailed analysis, FTIR spectroscopy enables technicians to make informed decisions about the quality and suitability of paving materials, ultimately leading to safer and longer-lasting road surfaces.

FTIR can identify various material components, thus providing detailed information about the molecular structure.



Image Source: FHWA Fourier Transform Infrared Spectrometer Device and (inset) Material Sample

## FTIR FEATURES







Tests at least **THREE REPLICATES** for each sample

Generates data in <2 MINUTES

