



FTIR gas analysers have become popular in a wide variety of gas detection and monitoring applications because of their ability to measure almost any gas. However, the cost of this equipment can exceed the budgets of those that could benefit from this sophisticated technology, so Quantitech has established a small range of FTIR gas analysers that are available for hire.

Typical applications for FTIR gas analysis include industrial emissions monitoring, occupational safety surveys, engine exhaust testing, process monitoring, leak detection, emergency response, chemical spill and fire investigations, breathing gas analysis and many others.

FTIR

An FTIR spectrometer obtains infrared spectra by first collecting an ‘interferogram’ of a sample signal with an interferometer, which measures all infrared frequencies simultaneously to produce a spectrum.

Sample identification is possible because chemical functional groups absorb light at specific frequencies. In addition, through calibration of the spectrometer, it is possible to determine the intensity of the absorption (relative to the component concentration).

The Gaset library of reference spectra consists of reference files of gas spectra measured to-date with different Gaset gas analysers. The library contains hundreds of spectra and each reference spectrum contains both quantitative and qualitative information about the component. This means that users are able to analyse samples retrospectively if a new parameter becomes of interest.

High levels of accuracy and low levels of maintenance are achieved as a result of continuous calibration with a He-Ne laser, which provides a stable wavenumber scale. In addition, high spectral signal to noise ratio and high wavenumber precision are characteristic of the FTIR method. This yields high analytical sensitivity, accuracy and precision.

Emissions monitoring

Able to monitor multiple gases simultaneously even in emissions that are hot, corrosive and high in moisture, the Gaset FTIR analyser is ideal for a wide variety of emissions monitoring applications. Quantitech's Dr Andrew Hobson says "The DX4000 is popular for renting because of its portability and flexibility; it has the same capability as a rack mounted CEMS, but provides users with the ability to measure almost any gas at multiple sites, so it can be used to verify fixed CEMS, and for research and investigative work."

The DX4000 is typically set up to measure H₂O, CO₂, CO, NO, NO₂, N₂O, SO₂, NH₃, CH₄, HCl, HF and a variety of different VOC's, but additional gases can be added without any hardware changes. Easy-to-use Calcmeter™ software is supplied with the analyser and results can be displayed in ppm, mg/Nm³ or Vol-%. All measurement data and spectra can be stored for later analysis.

The Gaset FTIR analyser is MCERTS approved for nine of the most important parameters. However, with such a vast array of measurable parameters possible, existing users are also able to take measurements that help improve process control.

Ambient/workplace monitoring

The new Gaset DX4040 portable FTIR multi-gas analyser is also available for hire from Quantitech. This unit contains exactly the same analyser as the other Gaset FTIR instruments, but is housed in a backpack and communicates wirelessly with a PDA.

The PDA enables users to measure up to 25 (user defined) gases simultaneously, but the DX4040 can also operate with a laptop or PC to analyse spectra for thousands of gases. This means that the technology can be employed for the investigation of unknown gases.

Quantitech's Dr Andrew Hobson is available to offer help and advice on the use of FTIR gas analysis and is responsible for configuring each rented analyser to best meet users' needs.