Advances in FTIR Gas Analysis - Measuring % to ppt

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Abstract

Fourier transform infrared spectrometers (FTIR) are widely utilized in chemical analysis as qualitative tools for chemical identification and for determination of chemical structure. However, when chemicals are observed in the gas phase (ambient air, chemical process emissions, etc.) away from interactions like hydrogen bonding, the compound concentration within the sample matrix can also be readily determined. FTIR gas analyzers over the last 25+ years have become ideal tools for performing qualitative as well as quantitative analysis in complex matrices. The simultaneous measurement of 20 to 30 compounds at % to high ppb levels can be achieved, due to the constancy of the infrared spectrum of a molecule.

Very recent developments in FTIR spectrometry are now allowing these analyzers to measure into the mid parts-per-trillion (ppt) range. This newfound sensitivity opens up a myriad of uses for these instruments in critical real-time process monitoring and control applications. This seminar will discuss FTIR gas analysis technology, novel new technological enhancements, and the utilization of this optically enhanced (OE-FTIR) technology for process and environmental monitoring.