

## Application Note — Continuous, On-Line NIR Analysis of Process Gasses

Near infrared (NIR) is not commonly associated with on-line analysis of process gasses in comparison to infrared (IR) and the ubiquitous, but maintenance-intensive gas chromatograph (GC). The purpose of this application note is to demonstrate not only the specificity, but also the quantitative capability of our NIR photometers for *continuous* gas analysis.

These NIR spectra illustrate the differences among common process gasses. The left figure below is for the weaker peaks in the 1000 – 1500 nm region, and the right figure below is for the stronger peaks in the 1500 – 1900 nm region. They represent ppm concentrations at low pressures taken in a 25 cm fiber optic cell. In some cases, such as identification of gasses in incoming rail-road tank cars at plant sites, we use various peak ratios and output unique (4, 6, 8 mA) analog signals that represent the identified gas

In other cases, we provide continuous, quantitative gas analysis. The trend shown below was taken from one of our 20 cm probes (shown below) over 3 days in a manufacturing plant. The plot represents over-lapped data from a pair of redundant ChemView® analyzers measuring ethylene in the low percent range. ChemView® corrects for sample pressure, transmits continuous analog output and in many instances, achieves better than 1% full-scale precision (e.g. 5% propane in propylene).

