

Laser-Based Natural Gas Sensors: Can the Natural Gas Industry Afford To Be Without This Advanced Technology?

Ultra-fast and accurate, NASA-based gas analyzer technology provides quick return on investment by reliably measuring moisture and other natural gas contaminants while reducing maintenance and shut-in costs

(PRWEB) February 8, 2006 -- Until recently, natural gas producers, processors and distributors have relied on direct contact, surface-based electrochemical and crystal sensors for measurement of moisture in gas. However, these [natural gas sensors](#) are often highly unreliable, producing false data that can result in contaminated gas getting through lines and causing system disruptions as well as potentially hazardous conditions.

Now there is a far more advanced and trustworthy monitoring technology available to natural gas producers, pipeline operators and distributors -- a tunable diode laser (TDL)-based technology developed at NASA's Jet Propulsion Laboratory at Caltech that is highly effective in detection of contaminants in natural gas. SpectraSensors, Inc. (www.spectrasensors.com) - a leading manufacturer of optical-based gas sensors - manufactures and markets a highly reliable "bread box-size" system for industrial applications including the natural gas market. The system, a natural gas sensor and analyzer device, provides non-contact measurement of moisture, carbon dioxide, and other corrosives in natural gas pipelines.

Tunable laser-based [natural gas sensors](#) are fast, accurate and flexible. They are also cost effective. While initial purchase price is somewhat higher than problematic surface-based gas sensors, even the most conservative evaluation of this advanced technology indicates that maintenance saving alone (e.g., calibration, replacement sensor heads, service labor) will provide a return on investment in a relatively short period of time.

But the real question is: can pipeline operators and others who need ongoing and accurate gas analysis afford to overlook this advanced natural gas sensor technology? Considering the potential cost of shut-ins due to wet gas, the added cost of excessive dehydration processing, or even a temporary production shutdown, a laser-based sensor system could pay for itself almost immediately.

For example, transmission pipeline operators have frequently relied on electrochemical sensors as gas analyzers to monitor moisture. These natural gas sensors incorporate a coated surface, and a higher electrical capacitance across the surface indicates higher water content. However, these capacitance sensors are susceptible to contamination by glycols or amines in the gas, which can cause exaggerated readings or a failure to detect. An erroneously high reading could force the operator to temporarily shut down the pipeline costing the company tens or hundreds of thousands of dollars.

SpectraSensors' TDL sensors offer high spectral purity. This enables the detection of specific gases -- such as water, ammonia, and carbon dioxide. Measurement intervals are as frequent as every two seconds, giving far more timely responses than the several minute (sometimes hours) readings of contaminant-vulnerable quartz crystal and electrochemical sensors, which must be frequently cleaned and replaced.

Because a laser system never comes into contact with the contaminants present in natural gas -- as do



electrochemical and crystal gas sensors -- the laser-based gas analyzer practically eliminates maintenance and operational costs. Additionally, these [natural gas sensors](#) eliminate the costs and downtime incurred by having to either return an analyzer to the manufacturer for reconditioning or calibration, or having to inventory spare sensors as back-up units.

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