

Factors to Consider When Choosing a Natural Gas Moisture Analyzer

Savvy Engineers know the most economical natural gas analyzer balances price with performance with maintenance and accuracy.

(PRWEB) June 8, 2006 -- Although an economic analysis will usually show field repair and consumables have a far greater impact on the total cost of ownership, initial investment is often seen as the most important consideration when choosing a natural gas moisture analyzer. In fact, there are many considerations when specifying a [moisture analyzer](#).

Accuracy

Electrochemical sensors, quartz crystal sensors, and electrolytic sensors have an important commonality; they all interact with the gas, where as the moisture is absorbed into a treated surface and some physical property change takes place that can be precisely measured. Due to the gradual decline in effectiveness of the sensor's surface, it drifts over time.

Recent developments in Spectroscopy have made it possible to send a beam of light through a natural gas sensor that is then analyzed to determine the absorbance of certain wavelengths of light. This technique is not susceptible to contamination and insensitive to flow, because the sensor is not touching the gas stream.

Speed

Some processes occur very slowly and the amount of moisture in the natural gas does not change rapidly. In other cases, moisture spikes or "slugs" as they are called can occur with highly detrimental effects. For example, if something goes wrong at a dehydration plant, or if a wet source of gas is introduced upstream, moisture levels can instantly spike.

With a laser-based natural gas analyzer no time is needed for absorption. The readings are provided every second, with the only delay being the time required to get the sample to the analyzer. This eliminates any delays in reading time.

Interference

Interferences occur when a sensor can be fooled by a gas other than the target gas. Surface based sensors work by allowing moisture molecules into the surface where it can react with the sensitive layers inside. But what if another molecule can get into the surface and react?

The laser-based [moisture analyzer](#) measures the absorption of light. Since no other component in natural gas absorbs light of that same wavelength, there are no interferences. A laser-based analyzer is completely immune to any amount of methanol, amines, glycols, sulfurs, or any other gases present; it only detects water molecules!

Maintenance

Electromechanical and electrolytic sensors require periodic refurbishment or replacement of the sensor heads. Several sensor heads should be kept on hand to prevent long downtimes. Quartz crystal analyzers require sensor head replacements as well as expensive desiccant and permeation tube replacements that require downtime and specialized training.

The laser-based natural gas analyzer is made up of electronic (solid state) parts that do not come into contact with natural gas and does not have any moving parts it is an extremely robust and simple device that requires virtually no maintenance.

The Bottom Line

For the total cost of ownership, the initial investment plus the cost to maintain the analyzer over some period of time must be added together.

The first year of ownership shows the electrochemical or electrolytic sensors cost the least, but by the end of year two the expense will equal the amount of a laser-based system. After 5 years the cumulative cost could be twice as high or more.

For users the bottom line is always going to be measured in costs as well as quality. The advantage they now have is the option to choose a natural gas [moisture analyzer](#) that offers high reliability and justify it with lower overall costs.

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