There are two general approaches to monitoring emissions from stack gases: in-situ analysis or extractive analysis. There are definite pros and cons to both.

**In-situ analyzers** measure the components of interest directly in the stack, under process conditions.

**Extractive systems** transport the gas from the stack to the analyzer, and condition the gas to meet the requirements of the analyzer.

**PROS/CONS**

**IN-SITU**
- Measures the gas in the stack, under typical process conditions (temperature, pressure, moisture).
- In-situ analyzers do not have filters or other sample conditioning components to maintain.
- IN-SITU systems can be installed at grade and even inside an instrument shelter; making maintenance easier and safer than in-situ.
- IN-SITU need not remove moisture from the sample, reducing the risk of removing water-soluble compounds affecting the “true measurement.”

**EXTRACTIVE**
- Analysis involves transporting the sample from the stack to the analyzer.
- In extractive systems the measurement is only as good as the sample. Moisture in the sampling system can be a significant problem.
- EXTRACTIVE systems are more complex and costly. They require a sample line from the stack to the analyzer system.
- EXTRACTIVE systems are typically lower in cost than an extractive system due to lack of sample conditioning and transport.
- Many factors play a role in determining which option to choose. These include: process conditions, mounting location, regulatory requirements and cost. Knowing the advantages and disadvantages of each can help you determine the correct approach for your application.

Visit SICK USA’s blog for the full post of Monitoring Emissions from Stack Gases: In-situ vs. Extractive, www.sickusablog.com