TOPIC: Odorization control

Metrology and on-line Gas Chromatography on sulfur compounds in Natural Gas

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Introduction

With increased scrutiny and regulation on Natural Gas (NG) pipeline operators and distribution companies to accurately measure, odorize and report sulphur levels in the product the need is greater than ever for a precise way to perform the measurement. The on-going development of Gas Chromatographs (GC) with sulfur specific detectors, coupled with an increased need for on-line/continuous monitoring has led to an integrated solution, the energy MEDOR

The need for accurate, reliable and cost effective means for odorant and sulfur measurements in NG pipelines has led to the installation of this cutting edge yet established technology. Understanding the needs of the users and operators and tailoring a system to perform the direct measurement of sulphurs and mercaptan allows for immediate adjustment of your odorant injection rates, and an accurate defensible record of the amount of odorant and naturally occurring sulphurs in NG. With a simple low cost solution for installation, maintenance and operation combined with online validation of the results the energyMEDOR gas chromatograph performs in the most stringent application with the lowest cost of ownership on the market.

Presentation and analysis principle of the energyMedor

The energyMEDOR is the fully automated Gas Chromatograph for sulfur monitoring. With only a need for nitrogen carrier gas and standard electrical power, installation can be made into your current monitoring enclosure or installed in a standalone system.
The energyMEDOR is equipped with two columns, heated in isothermal oven with a preset temperature of 45°C, a 10-ports pneumatic valve, electrochemical detector and an internal permeation standard or external cylinder to validate your results.

The energyMEDOR automatically samples the NG from the pipeline continuously in low volume, the NG travels through a loop, the loop is injected onto the chromatographic columns where the sulfurs are separated, after the columns the sample is detected on the electrochemical detector without additional conversion or sample manipulation.

Following the detection of the compounds the onboard system processes the data and provides the operator with data in either analog or digital formats. In addition the operator can review all data with the software installed into the energy MEDOR.

Performance criteria on calibration and validation of results:

The energyMEDOR has been proven by our partners globally to provide the most accurate and reliable analysis in the industry:

- USA, ASTM standard work, linearity and repeatability of several compounds have been tested. Our work has served to define ASTM D7493-08: Online Measurement of Sulphur Compounds in Natural Gas by GC and EC detection.
- Spain, EN ISO 19739 test method for repeatability and linearity in addition: stability of auto-calibration for each measurement has been also tested. The study shows that the results comply with the standard criteria.
- France, tests on intercomparison for response factors has been carried out. Results show a correlation window on response factors.

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- studied in furthers tests).

Conclusion:

The EnergyMedor NG specific detector is sensitive to sulfur compounds at ppm or ppb levels. The technique results in unsurpassed separation of the sulfur compounds, exceptional stability of the results, combined with the ease of an automatic platform. The MEDORs are fully automated rugged industrial analyzers that provide an ideal solution for companies and operators looking to increase data capture and maximize efficiency. Our partners validate the energyMEDOR measurement of sulfur compounds for odorization of natural gas and pipeline integrity monitoring.

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