MTI

Analytical Technology

A Division of MerTech Incorporated

Low Level Sulfur Calibration / Validation Standards

APPLICATION

Analysis for trace concentrations of sulfur compounds is required throughout the petrochemical industry. Applications range from product quality assurance to industrial hygiene to environmental protection and require measurements at low ppb concentrations. Because some sulfur compounds are more troublesome than others, the various compounds must be individually measured, i.e., speciation is usually required.

While a great deal of progress has been made in all areas of sulfur compound analysis, these trace concentration measurements are still on the cutting edge. Careful, multi-point calibration and frequent system verification checks are needed. This requires periodic introduction of precisely known concentrations of the various sulfur compounds to test the system.

The traditional high-pressure cylinders of calibration gas are notoriously unstable with trace sulfur compound standards. Sulfur compounds are polar and very reactive. Over time they interact with the cylinder wall to unpredictably change the delivered concentration. Additionally, there is always risk in handling high-pressure gases. Permeation tubes are so safe that they are exempt from hazardous materials shipping regulations.

Permeation tubes contain a small amount of a pure chemical analyte. When held at a constant temperature, these devices emit a small, stable flow of chemical vapor measured in nanograms or nanoliters per minute. A diluent flow is then directed over the permeation tube, diluting the analyte to produce PPB and PPM levels to the analyzer.

The permeation method is dynamic, thus eliminating the adsorptive problems of static blends. Gas generators for permeation devices operate at low pressure, contributing to personnel safety.

Kin-Tek Laboratories' systems use **Trace Source™ Permeation Tubes** to continuously add trace concentrations of the various sulfur species to a carefully metered flow of dilution gas. Concentration is adjusted by changing the dilution gas flow. When a process gas such as propylene is used as the dilution gas, the "standard additions" technique is used to eliminate the effect of residual sulfur contamination in the diluent. Standards produced with ***Kin-Tek*** systems are traceable to NIST through physical standards.

MTI Analytical Technology is available to assist with environmental and process monitoring applications. Design, engineering, fabrication, installation, and commissioning may be accomplished, thus assuring integrity and performance of component units.

MTI Analytical Technology Products

Analyzers
Calibration / Validation Standards
Electrodes
Electrochemical Sensors
Emission Eliminators
Packaged Analytical Systems
Sample Handling / Conditioning Devices
Software Documentation Systems for Analyzers
Software for Continuous Emission Monitoring Reporting

Call, Fax, or E-mail for Additional Information

E-mail: dcmerriman@mertechinc.com