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RATA Heated Sample Lines & Sample Transport Solutions

Sector:
INDUSTRIAL

Perma Pure is now part of Salaera

THE CLAYBORN HEATED SAMPLE LINE SOLUTION

Clayborn heated sample lines are designed to support sample integrity by maintaining controlled heat along the transport path and helping prevent condensation before the sample reaches downstream conditioning and analysis equipment. Key features include:

- **Temperature Management:** Thermally conductive heat tape is wound around the sample tube to provide controlled heating along the full length of the sample line
- **Temperature Monitoring and Protection:** Dual Type-K thermocouples provide temperature monitoring for control and over-temperature protection
- **Field-Oriented Construction:** Tough, lightweight sheathing and armored, field-replaceable end fittings are intended to support repeated portable use
- **Standard Configurations:** 50 ft and 100 ft line lengths are available with an Industrial-Strength Fire sleeve or Light Weight Tuff Guard for outer protection



Why Sample Integrity Matters

Protect the Measurement	Condensation can affect sample composition before analysis, particularly for water-soluble components, potentially influencing measured concentrations and test results
Support Representative Testing	Temperature-controlled sample transport helps minimize condensation-related sample changes between the stack and downstream conditioning or analysis equipment
Protect Downstream Equipment	Preventing unintended condensation in the transport path also helps reduce moisture-related issues in analyzers and sensors

Discover how our Heated Sample Lines & Salaera Bundle supports accurate RATA testing

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RATA Overview

A **Relative Accuracy Test Audit (RATA)** is a field test used to assess the accuracy of a facility's **Continuous Emissions Monitoring System (CEMS)**. During a RATA, reference-method measurements are performed concurrently with CEMS measurements, and the results are compared to determine whether the monitoring system meets the applicable performance requirements.

During reference-method testing, the sample transport line carries extracted stack gas toward the measurement system. Maintaining appropriate sample temperature is critical: if the gas cools below its dew point before the applicable conditioning or analysis point, condensation can occur and can change the composition of the sample.

Protect Sample Integrity From Stack to Analyzer

Components for a Complete Sample Path:



1. Heated Sample Line: Transports the sample while maintaining the required temperature through the heated portion of the sample path.



2. Sample Cooler: Removes bulk moisture from the sample before analysis when a dry-basis measurement system requires moisture removal.



3. Ammonia Scrubber (optional): Removes ammonia from the sample stream where required by the application.



4. PD Polisher (optional): Provides an additional moisture-removal stage to lower sample dew point when required by the application.

Regulatory Context

RATAs are recurring quality-assurance assessments required for certain continuous emissions monitoring systems (CEMS) under applicable emissions-monitoring regulations. The required frequency, test procedures, and acceptance criteria depend on the applicable regulation, monitoring system, pollutant or parameter, and system performance.

- Under 40 CFR Part 60, Appendix F, Procedure 1, covered CEMS are subject to quarterly accuracy audits, with a RATA required at least once every four calendar quarters, subject to specified exceptions.
- Under 40 CFR Part 75, Appendix B, RATAs are generally required semiannually, with qualifying monitoring systems eligible for annual testing based on demonstrated relative accuracy; these frequencies are based on QA operating quarters.
- EPA Method 7E requires applicable sample-system components to maintain the sample above its moisture dew point to prevent condensation prior to the appropriate conditioning or analytical point.

Regulatory References

1. 40 CFR Part 60, Appendix F, Procedure 1 – Quality Assurance Requirements for Gas CEMS Used for Compliance Determination
2. 40 CFR Part 75, Appendix B – Quality Assurance and Quality Control Procedures
3. 40 CFR § 75.21 – Quality assurance and quality control requirements
4. EPA Method 7E – Determination of Nitrogen Oxides Emissions From Stationary Sources (Instrumental Analyzer Procedure)