UK Health and Safety Laboratory samples with Axetris mass flow controllers

Proficiency testing ensures workplace & consumer safety

The Health and Safety Laboratory (HSL) runs a state-of-the-art atmosphere generation system for recreating polluted atmospheres and accurate loading of standards of hazardous materials such as VOCs. These standards are used for conformity testing by participating laboratories as part of proficiency testing schemes. Axetris' mass flow controllers provide the high performance and reliability needed to produce such samples.

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The HSL is a world-leading provider of health and safety solutions; Here: main building in Buxton, Derbyshire (UK).

HSL: Key contributor to workplace and consumer safety

The Health and Safety Laboratory provides scientific, medical and technical expertise to lead research and support those managing workplace and consumer risk. Key capabilities include occupational health, exposure assessment, major hazards and risk management.

Proficiency Testing Schemes

Analytical service providers follow strict quality assurance and control (QA/QC) procedures to reliably analyze samples and demonstrate this reliability to customers. One of the best forms of QA is to participate in an inter-laboratory proficiency testing (PT) scheme. Candidate laboratories are sent replicate test samples for analysis, as part of their routine workload and the results are reported to the scheme coordinator. The report shows the laboratories how closely their results match the agreed values. HSL supplies the standards for the AIR PT scheme for laboratories wishing to conform to standard methods such as ISO 16017 and EPA T0-17.

"HSL has been using Axetris mass flow controllers since 2013. The MFCs control all sampling volumes on the atmosphere generator and tube loading rig for proficiency testing. They play a key part in achieving precision for sample tube loading attaining a <1.5 percent RSD across the whole process. Besides their mass flow reproducibility and dynamic range, we have found Axetris MFCs to be very stable and reliable."

Mr. Neil Plant

Senior Scientist, Health and Safety Laboratory

Measurement and Control Reproducibility a must

HSL produce standards that have market-leading reproducibility and accuracy – with less than 1.5 percent relative standard deviation (RSD) for vapor-phase produced, actively sampled and GCFID analyzed tubes. This remarkably low RSD includes: any variation coming from the atmosphere generation (controlled by closed loop feedback), any variation in sampled volume and any variation during confirmatory analysis. Reliable and accurate mass flow controllers play a fundamental role in this exceptional quality control contributing < 0.25 percent variation to the volume sampled through their mass flow control.

State-of-the-art production setup

Axetris mass flow meters and controllers are designed keeping the strict demands of analytical instruments, e.g., for thermal analysis, in mind.

Atmosphere generation requires the use of mixing chambers, where controlled humidity air is mixed with known VOC concentrations from liquid injection and/or bottled gas. Precise quantities of the VOC-enriched air are metered using mass flow controllers onto individual sample tubes containing sorbent.

Besides delivering high precision and reproducibility, the mass flow controllers must work across a wide dynamic range to allow different volumes to be sampled onto different tubes in the same time period. Axetris' mass flow controllers are being used as part of the atmosphere generation system since 2013, and have been reliable in terms of mass flow reproducibility and robustness.

Read more about HSL's Proficiency Testing Schemes: http://www.hsl.gov.uk/proficiency-testing-schemes

With automated TD-GC instrumentation HSL analyzes tubes for worker exposure assessment, environmental monitoring, performance validation of methods and samplers.

About Axetris Mass Flow Meters and Controllers

Axetris offers OEM mass flow meters (MFM) and controllers (MFC) which offer outstanding value to the customer. The proprietary, platinum-based MEMS chip technology guarantees excellent accuracy and repeatability in combination with high speed and an extended dynamic range.

The Axetris mass flow technology is used by many leading companies in the fields of gas chromatography, leak testing, thermal analytics, mass spectroscopy, thin film deposition, plasma engineering and more.

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