

STORM PEAK LABORATORY, COLORADO, 3,220 M

BINGHAM RESEARCH CENTER · UTAH STATE UNIVERSITY

Mercury Calibrator

The Bingham Research Center at Utah State University Uintah Basin Campus has developed a mercury calibration system which represents a significant advancement in atmospheric mercury monitoring technology. Our calibrator is designed to address critical gaps in mercury measurement science and enhance the understanding of mercury's environmental impact.

Hg^0, $HgCl_2$, $HgBr_2$	Ambient level	SI-traceable
COMPOUNDS DELIVERED	CONCENTRATIONS GENERATED	GRAVIMETRIC PERMEATION RATES

Unique capabilities

Multi-compound calibration: capable of utilizing multiple permeation tubes to enable calibration with elemental mercury, $HgCl_2$ and $HgBr_2$.

Automated operation: programmable for full automation of calibration sequences for remote deployment and minimal unattended operation.

Ambient-level accuracy: demonstrated ability to generate and deliver precise concentrations of oxidized mercury at levels typical of background ambient air.

Ultra-inert handling system: designed to maximize sample transmission of highly reactive mercury compounds.

Field ready: portable system which maintains calibration stability across various environments and weather conditions.

Quality assured: gravimetric validation methodology for independent, SI-traceable verification of mercury permeation rates.

Applications

Atmospheric monitoring

Enables accurate measurement of oxidized mercury in ambient air. Delivers precise concentrations of known quantity into ambient air sampling systems.

Regulatory compliance

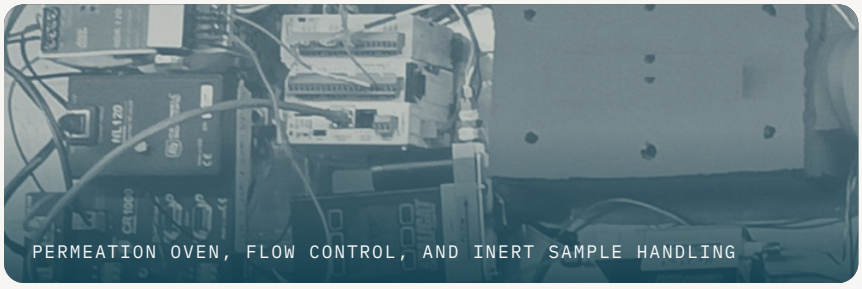
Assists in verifying mercury monitoring equipment for environmental regulations.

Mercury analyzer validation

Traceable calibration for commercial and research-grade mercury analyzers.

Laboratory standards

Provides SI-traceable, ultra-low concentrations of elemental mercury and mercury compounds.



PERMEATION OVEN, FLOW CONTROL, AND INERT SAMPLE HANDLING

Proven performance

This is the world's only calibrator for ambient levels of elemental mercury and oxidized mercury compounds with demonstrated field performance. In collaboration with research partners, including the **University of Nevada Reno**, **University of Colorado**, and the **Jožef Stefan Institute** in Slovenia, the calibrator has demonstrated exceptional stability and reliability across diverse field conditions, including winter deployment at the 3,220 m mountaintop **Storm Peak Laboratory** in Colorado.

The calibrator allows for accurate measurements of atmospheric mercury species, supporting critical research on mercury. This technology helps researchers understand atmospheric mercury redox processes, improve environmental models, and develop effective strategies to reduce mercury pollution and its impacts.

Interested in licensing or collaboration?

Bingham Research Center, Utah State University

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