

Thermo Scientific Model 84i Mercury Permeation Source

Permeation source designed for the Mercury Freedom System

Thermo Scientific™ Permeation Source is the only permeation oven that fully integrates with the Thermo Scientific™ Mercury Freedom™ system to meet interim protocol QC and U.S. EPA regulatory requirements for Mercury Monitoring.

- Integrates into the Mercury Freedom System with up to two co-located systems
- Automated and manual trigger audits available
- Supports U.S. EPA Utility MATS and Cement MACT regulatory requirement
- Approved method for meeting interim protocol QC requirements



Proven Platform

The Model 84i source complements the Mercury Freedom System by periodically assessing and qualifying the constancy of the mercury concentration output from the Model 81i Mercury Calibrator. The Model 80i Mercury Analyzer is used to control the functions of the Model 84i source, including data capture and DAS interface. An option in the Model 80i software has been added to allow the user to access and manage the Model 84i source.

The Model 84i source can support up to two co-located* Mercury Freedom Systems. The dual built in output ports switch between the co-located system or can alter the flow to (700scm) to flood the two Model 80i analyzers simultaneously. The Model 84i source is designed to install into the existing system rack or can be used as a standalone bench top mercury source.

Regulatory Support

The Model 84i source uses a process by which a specific and consistent concentration of Mercury is generated from a permeation assembly.

The permeation tube generates a known and reliable concentration of mercury at a constant temperature and flow. The generated mercury concentration, as measured by the 80i analyzer, will be used to confirm the reliability of the 81i calibrator output in accordance with U.S. EPA requirements.

In compliance with the “Interim EPA Traceability Protocol for Qualification and Certification of Elemental Mercury Gas Generators”, periodic quality assessments of Mercury Gas Generators are required following initial certification of an elemental Hg Generator. QC audits performed by the Model 84i source can be triggered automatically through preprogrammed intervals at the desired frequency of the user. A manual QC audit can be triggered as needed to meet specific requirements, in turn acting as a troubleshooting tool or to access additional audit data quickly and



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Hg Output	Default: 5 $\mu\text{g}/\text{m}^3$ Range: 2 - 15 $\mu\text{g}/\text{m}^3$
Sample Flow Rate	Default: 600 cc/min Range: 500 - 750 cc/min
Operating Temperature	10–30 °C
Power requirements	105–240 VAC @ 50/60 Hz, ~4 amp service
Physical dimensions	16.75" (W) X 5.25" (H) X 17" (D), 19" rack mountable, 3U
Weight	20 lbs (9 Kg)
Serial Ports	RS-485 with dual connectors (DB-15F)
Precision	0.04 $\mu\text{g}/\text{m}^3$ daily
Accuracy	Comparison against vendor prime reference
Carrier Gas	Common input with Model 81i analyzer Air or Nitrogen <20 °C dew point Oil, Particulate and Hydrocarbon free per ISO 8573.1 <0.01 $\mu\text{g}/\text{m}^3$ Hg
Supply Pressure	40-70 PSIG
Back Pressure	0-4 PSIG



The Thermo Scientific Model 84i Mercury Permeation Source is designed to install into the existing system 19" rack using standard brackets or can be used as a standalone bench top



Ordering Information

The Thermo Scientific Model 84i Mercury Permeation Source is a key component of the Thermo Scientific Mercury Freedom System. The system may require custom configuration based on your application. Please contact your local Thermo Fisher Scientific sales representative and we will work with you to complete an **application** datasheet that will accurately determine the best configuration for your plant process.

To maintain optimal product performance, you need immediate access to experts worldwide, as well as priority status when your air quality equipment needs repair or replacement. We offer comprehensive, flexible support solutions for all phases of the product life cycle. Through predictable, fixed-cost pricing, our services help protect the return on investment and total cost of ownership of your Thermo Scientific air quality products.

*Co-located refers to two Thermo Scientific Mercury Freedom systems or Model 80i analyzers located in the same shelter.

For more information, visit our website at thermoscientific.com/mercury

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This product is manufactured in a plant whose quality management system is ISO 9001 certified.

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