



Mound Technical Solutions, Inc.

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TRITIUM BUBBLER MODEL MRB500



The MRB500 Tritium Bubbler is the state-of-the-art discriminating tritium collection instrument. The Tritium Bubbler was developed and introduced by the DOE's Mound facility in Miamisburg, Ohio in the 1970's. Those same scientists founded Mound Technical Solutions in 1996.

MTS UNIQUELY OFFERS

- ☑ Certified >99.9% efficient oxidizer
- ☑ Impingers accept standard 20ml scintillation vials, any manufacturer, glass or plastic
- ☑ Long service life with 24/7/365 operation, many operate >15 years with standard PM
- ☑ Full technical support from > 35 years experience with tritium measurement technologies
- ☑ Designed and assembled with components proven by years of operating experience
- ☑ Collection fluid transport prevention built in
- ☑ High precision mass flow control, measurement, and volume integration (totalizer)
- ☑ All parameters user adjustable including sample flow, oxidation temperature, and sample period
- ☑ Well documented operating and maintenance procedures provide detailed information
- ☑ Comprehensive Quality Assurance documentation provided with each production unit:
 - Oxidizer Efficiency Certified by Mass Spectrometer analysis of inlet/outlet
 - Flow Control Measurement Certified NIST traceable
 - Multipoint Quality Evaluation of assembly and operation of each product
 - Comprehensive Manual and support documentation

MRB500

Tritium Bubbler Collection Monitor

Operation



The MRB500 provides a sampling pump capable of drawing the sample flow (20 – 200 sccm) from a stack, a process, or direct ambient air. The sample flow is integrated by the bubbler to provide a total volume of sample collected. The samples of the MRB500 are collected in standard 20ml liquid scintillation vials (glass or plastic). These are the same vials used by your liquid scintillation counter (e.g. Tri-Carb) making inventory of consumables extremely efficient. The bubbler collects the HTO sample in a set of three (3) vials. The remaining sample is then converted by our certified high efficiency oxidizer which provides for the collection of the HT and T-organics in the second set of three (3) vials. Operation requires only a simple collection vial exchange and aliquoting of sample for LSC measurement requiring minimal labor and time for high accuracy and sensitive tritium measurements.

SPECIFICATIONS

- Dimensions: Cabinet footprint: 16" W (19" rack mount) x 8.50" H x 16.0" D
.. Overall w/impingers & gates: 16" W x 8.50" H x 21.0" D
- Weight: 35 lbs (16 kg).
- Collection efficiency: >99.9% when operated at specified parameters.
- Power: 120 VAC, 5A nominal, 8A maximum; other available by order
- Oxidizer: Quality evaluated custom catalyst bed (analysis certificate provided), front panel adjustable furnace (600°C), over/under temperature alarm.
- Flow control: Electronic mass flow controller (20-200 sccm/min) with flow rate and total flow display and adjustment located on front panel. Pressure and flow alarm indication warns of out-of-spec operation.
- System protection: Check-valve and venting mechanism to protect against glycol transport; Vacuum measured to monitor pump and system performance; Audible, visual, dry contact relay fault alarm, serial USB interface to PC.
- Operating parameters: 5 to 40°C and 0 to 95% rh non-condensing.
- Sensitivity: Detection limit is at least 1E-11 µCi/cc based on LSC