



**Mound Technical Solutions, Inc.**

## **CARBON-14 BUBBLER MODEL MRB500C14**



The MRB500C14 Bubbler is the state-of-the-art discriminating  $^{14}\text{C}$  collection instrument. The Discriminating Collection Bubbler was developed and introduced by the DOE's Mound facility in Miamisburg, Ohio in the early 1980's. Those scientists founded Mound Technical Solutions in 1996 and continue to produce innovative products and provide comprehensive support.

### **MTS UNIQUELY OFFERS**

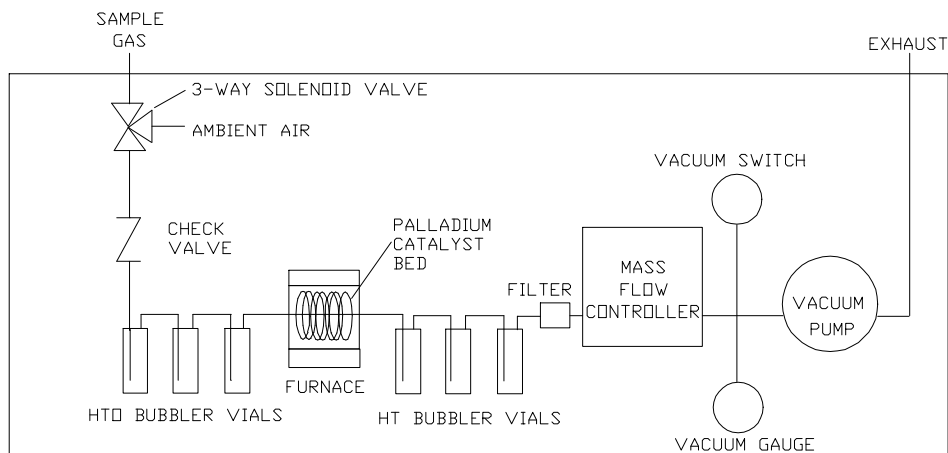
- ◆ Experience in the design, fabrication, maintenance, and evaluation of Bubbler instruments since 1981
- ◆ Evaluation of several designs and components over several years has established a knowledge base for quality and reliable construction
- ◆ Well documented operating and maintenance procedures provide detailed information
- ◆ Comprehensive Quality Assurance testing performed and documented on each production unit
- ◆ Capabilities include follow-up calibration of mass flow controller and complete instrument operational evaluation and calibration
- ◆ On-site, telephone, fax, and e-mail support are provided during and after the one year guarantee of materials and workmanship
- ◆ All makes of scintillation vials can be used with the instrument

**Located in the Mound Advanced Technology Center**

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## PRINCIPLE OF OPERATION



Sample gas enters the instrument and flows through three (3) standard scintillation counter ready vials containing collection media which retains all carbon dioxide (CO<sub>2</sub>) in the sample. The sample gas, now less the CO<sub>2</sub>, flows through a heated catalyst bed which oxidizes the carbon containing organic compounds in the sample gas. The oxidized gas flows through three (3) more vials of collection media that retain the remaining carbon components (now oxidized to form CO<sub>2</sub>). A precision mass flow controller regulates the gas flow through the instrument. The user has control over the flow rate and catalyst bed temperature.

## SPECIFICATIONS

Dimensions:..... Cabinet footprint: 16" W (19" rack mount ears on front) x 8.50" H x 22.0" D  
Overall w/impingers & gates: 16"W x 8.50" H x 27.0"D

Weight: ..... 35 lbs (16 kg).

Collection efficiency: ..... >99% when catalyst bed temperature is set to specified level.

Power: ..... 120 VAC, 3A nominal, 5A maximum; other available by order

Catalyst bed: ..... Custom bed containing quality inspected palladium sponge catalyst surrounded by front panel adjustable furnace (0 to 600°C) Over/under temperature alarm and temperature overrun protection included.

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 back-flow; Vacuum gauge to monitor pump performance; Pressure gauge to monitor system performance; Audible and dry contact fault alarm.

Operating parameters: ..... 5 to 40°C and 0 to 95% rh non-condensing.

Sensitivity: ..... Dependent upon liquid scintillation measurement