

Trusted solutions
for cloud and aerosol measurements

PILS Particle into Liquid Sampler

Model 4001

Perform real-time PM1 and PM2.5 particle composition measurements using the analytical method of your choice or by collecting directly into sample vials



Features:

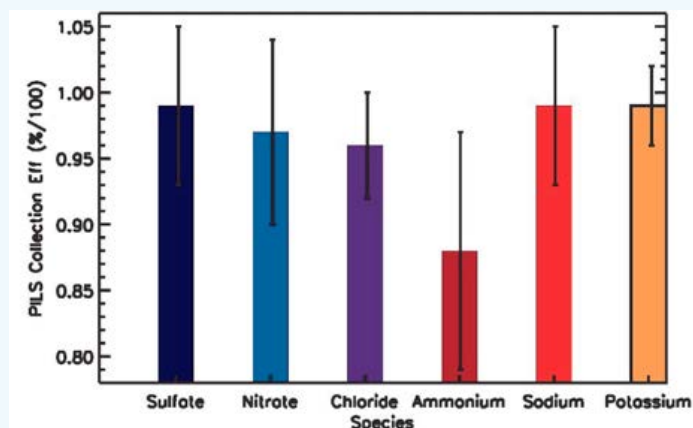
- PM1 or PM2.5 bulk aerosol sampling
- Both on-line and off-line analyses possible
- Fully characterized & field tested
- Low maintenance
- Easy to operate and install with compact size
- auto-collector
- Continuous unattended long-term operation
- Analyze samples using multiple analytical techniques
- Vial collection with multiple vial sizes using optional Auto-collector
- Rack mount chassis fits standard 19 inch racks
- Software to record PILS temperatures and control optional

BRECHTEL

Brechtel Manufacturing, Inc.
1789 Addison Way
Hayward, CA 94544
510-732-9723
sales@brechtel.com

Dedicated to furthering scientific discovery

Collection Efficiency



Specifications

Parameter	Value
PILS inlet sample flow	11-15 lpm
Washflow and sample liquid flow rates	0.03-2.0 ml/min
Chemical Species Detected	
SO ₄ , NO ₃ , NO ₂ , Cl, NH ₄ , K, Na, Ca, Mg detection limits	100 ng/m ³
Acetate, formate and oxalate organic acids detection limit	50 ng/m ³
Water soluble organic carbon detection limit	10 ppb
Electrical	
Supply voltage	110 OR 230 VAC
Supply current	5 amps @ 110 VAC
Operating temperature range	15-35° C
Physical	
Dimensions	17.2 x 6.9 x 16 in 43.25 x 17.5 x 4.75 cm
PILS system total weight	20 lbs/9 kg
Auto-collector total weight	20 lbs/9 kg

Publications:

R. J. Weber, D. Orsini, Z. Yhuang, Y. N. Lee, P. J. Klotz, and F. J. Brechtel (2001). A Particle-into-Liquid Collector for Rapid Measurement of Aerosol Bulk Chemical Composition. *Aerosol Science and Technology*, 35, 718-727.

A. Sorooshian, F. J. Brechtel, Y. Ma, R. J. Weber, A. Corless, R. C. Flagan, and J. H. Seinfeld (2006). Modeling and Characterization of a Modified Particle-into-liquid-Sampler (PILS) Optimized for Aircraft Sampling. *Aerosol Science and Technology*, 40: 396-409.

Applications

- Continuous monitoring of ambient aerosol composition
- Laboratory smog chamber studies
- Cloud condensation nucleus studies
- Visibility reduction studies
- Aerosol health impacts
- Long-term climate and air quality monitoring
- COVID-19 Sampling

How to Order

Part No.	Description
4001-115V	Particle-Into-Liquid-Sampler with controller software (PILS, 115 VAC)
4001-230V	Particle-Into-Liquid-Sampler with controller software (PILS, 230 VAC)
PILS-AC80	Auto-collector with 80 vial-holding carousel and control software
PILS-AC38	Auto-collector with 38 vial-holding carousel and control software
CA80	Additional 80 vial-holding carousel for Auto-Collector and 1.2 or 2.0 ml vials
CA38	Additional 38 vial-holding carousel for Auto-Collector and 10 or 12 ml vials
VS1.2	Pack of 1000, 1.2 ml poly vials and caps with septa
VS2.0	Pack of 1,000, 2.0 ml polypropylene vials and caps with septa
VS2.0G	Pack of 1000, 2.0 ml glass vials and caps with septa
VM12	Pack of 1000, 12 ml poly vials and caps with septa
DE	Denuder package with three denuders for organic, acidic and basic gases
8003	Round Jet Impactor 1.0 micrometer cut size, 15 lpm flow
8005	Round Jet Impactor 2.5 micrometer cut size, 15 lpm flow
PILS-LowFlow	PILS low liquid sample flow rate kit
PILS-P115	External vacuum pump, 115 V
PILS-P230	External vacuum pump, 230 V
PILS-PC	Computer with 4001 PILS software
PILS-Kit	Maintenance Kit for 4001 PILS
Peri-Tubing	Replacement peristaltic pump tubing for PILS (pack of 5, customer specified tube IDs)
Mesh Wick	Mesh Wick for PILS (Set of 5)

BRECHTEL

Email us at sales@brechtel.com

Copyright ©2022 All specifications are subject to change without notice. BMI assumes no responsibility for inaccuracies in this document or for any obligation to update information in this document. BMI reserves the right to change, modify, transfer or otherwise revise this publication without prior notice.

*Some products may be shown with optional accessories, which are sold separately. Items shown may not be to scale.