

BSS 310

BioSpot-VIVAS™ Bioaerosol Sampler



The **BioSpot-VIVAS bioaerosol sampler**, provides high-efficiency, gentle collection of bioaerosols into a liquid medium in a technique that mimics the function of the human lung. The technique, laminar-flow water condensation particle growth, allows for:

- ✓ **High efficiency collection – viruses, bacteria, spores, toxins, exhaled proteins**
- ✓ **<10nm to 10µm**
- ✓ **Concentrated samples into liquid**
- ✓ **Maintains viability**
- ✓ **Instant preservation of DNA/RNA for genomic analysis**

The technique:

A laminar-flow condensation growth tube (CGT) encapsulates airborne particles into liquid droplets and gently deposits the droplets onto a liquid surface. The air sample flow is 8 L/min, approximating the average rate at which a person breathes. Particles from this flow are deposited into ~2mL of water, buffer, genomic preservative or nutrient broth solution. Bioaerosols, including viable viruses, bacteria, fungal spores, toxins, and exhaled proteins are collected with high efficiency. The air sample temperature is moderate, never exceeding 40°C, while the liquid sample matrix has user-selectable temperature control from ambient down to 10°C. The high-fidelity, concentrated samples are ready for lab analysis.



Applications

- Airborne disease transmission
- Environmental microbiome
- Infectious disease surveillance in public, transportation, medical and agricultural settings
- Biocontamination monitoring in clean pharmaceutical aseptic manufacturing
- Defense/Homeland Security bio-surveillance
- Non-invasive medical diagnostics of exhaled breath particulate condensate

Model BSS310 Specifications

Particle Size Range	5nm to >10µm
Collection Efficiency	>90% for hydrophobic and hydrophilic particles
Collection medium	Water, buffer, genomic preservative or nutrient broth
Condensing Fluid	Water (distilled or cleaner)
Wick Material	DVPP00010 Durapore® Membrane Filter (EDM Millipore)
Sample Flow Rate	8 L/min
Sampled Aerosol Conditions	Non-corrosive 0 – 40 degrees C
Collection Reservoir	Collection into a 35 mm x 11 mm petri-dish
Display	LCD display, 4 lines x 20 characters
Communications	RS-232 communications output for sampling parameters and instrument status, USB-connectable to computers
Sample Inlet	10 mm OD SS tube
Power	85-264 VAC, 47-63 Hz
Dimensions	760 mm (H) x 457 mm (W) x 370 mm (D) (30 x 18 x 14.5 inches)
Weight	24 kg/ 53 lbs

Aerosol particle collector technology is licensed from Aerosol Dynamics Inc. with US Patents 6,712,881; 7,736,421; 8,801,838; 9,658,139; 9,821,263; German Patent 10392241; Chinese Patent 201180052428.5 and Japanese Patent 5908475. Other patents pending.

Specifications are subject to change without notice.

The BioSpot condensation growth tube collector is efficient over all inhalable particle sizes and maintains viability.

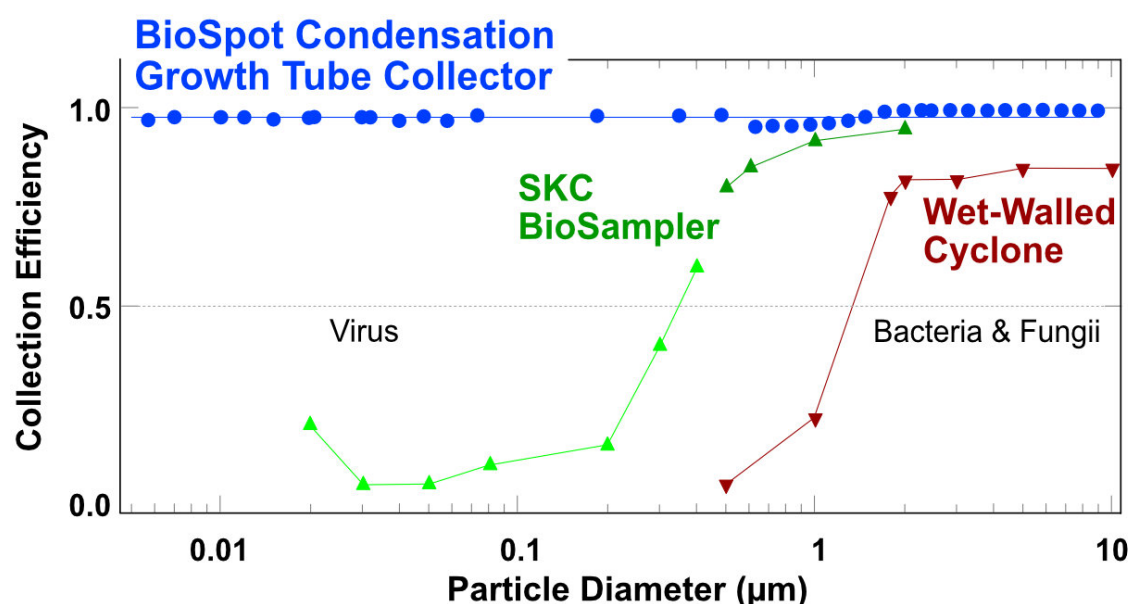


Figure 1. Collection efficiency as a function of particle size for various bioaerosol sampler technologies (Hogan et al. 2005, Willeke et al. 1998, McFarland et al. 2010, and Lednicky et al. 2016).

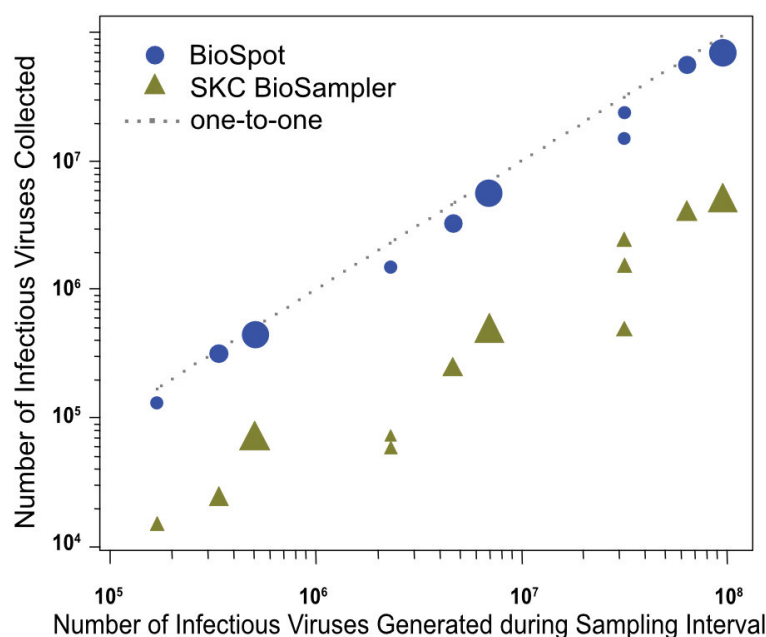


Figure 2: Influenza H1N1 virus (2009)—Number of infectious viruses collected as a function of the number of aerosolized infectious viruses generated (Lednicky et al. 2016).

References

See our website at aerosoldevices.com for a current list of publications that use the BioSpot-VIVAS for bioaerosols.

Aerosol Devices Inc. - Fort Collins, CO, USA

We are a team of engineers and scientists passionate about revolutionizing aerosol science through the collection and counting of fine and ultrafine particles. Formed in 2014, our founders Ms Pat Keady and Dr Susanne Hering are leaders in the aerosol measurement field: both are past presidents of Association for Aerosol Research (AAAR) and have authored numerous patents and published works.

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