BioSpot-VIVAS

Series 310 Bioaerosol Sampler

Purpose

The BioSpot-VIVAS™ bioaerosol sampler uses water condensation capture for highly efficient, gentle collection of bioaerosols. It is a proven tool for viable airborne disease capture.

Applications:

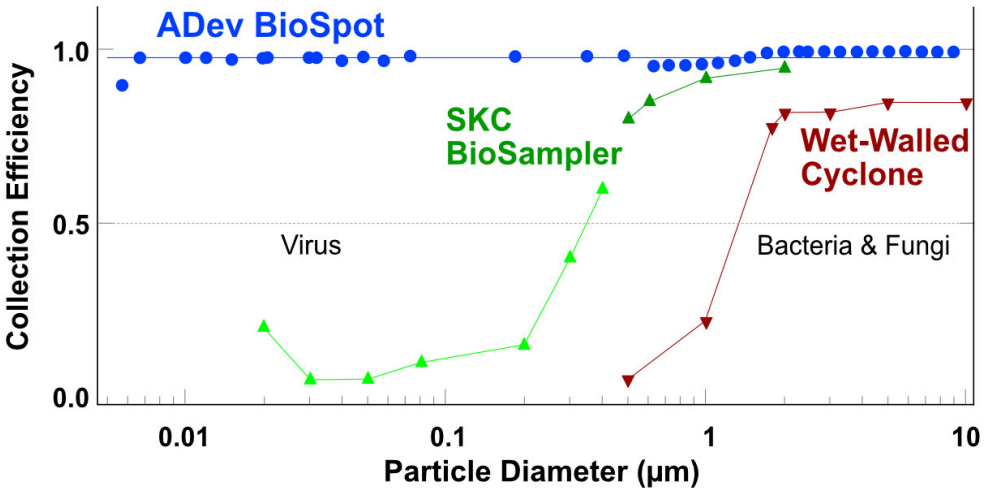
- Viable capture of bioaerosol
- Airborne disease transmission
- Environmental microbiome
- Infectious disease surveillance in public, transportation, medical, and agricultural settings
- Biocontamination monitoring in clean pharmaceutical aseptic manufacturing
- Defense/Homeland Security bio-surveillance
- Non-invasive characterization of particles from exhaled breath

Features

- High efficiency collection of viruses, bacteria, fungal spores, toxins, proteins, allergens, and other aerosol
- Gentle impaction into liquid and minimal heating of airflow maintains microorganism viability upon capture
- Concentrated samples into liquid for high sensitivity analysis, improving LOD/LOQ
- High particle collection efficiency with no particle bounce, <10nm to 10um, >90% efficiency
- Minimal heating of the airflow minimizes loss of volatile constituents and reduces thermal decomposition
- User-controlled temperature of petri dish improves preservation of capture bioaerosol
- Heavy-duty design is cleanable, rugged, and prepared for most environments

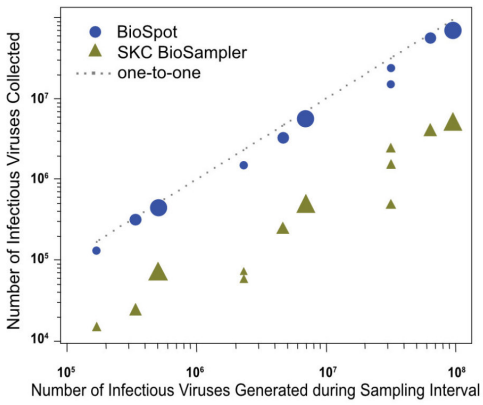
A Proven Method

Efficient Collection across a wide range



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.)

Viable Collection



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

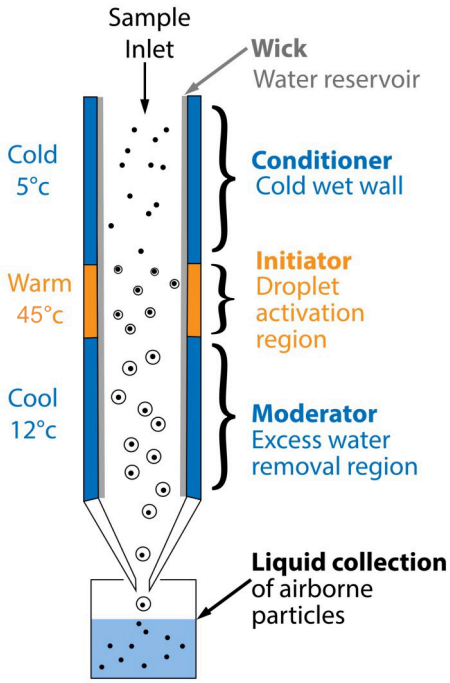
See aerosoldevices.com for a list of recent publications using the BioSpot-VIVAS, plus the technology behind Condensation Growth Tube (CGT) sampling.

Specifications

Particle Size Range	5nm to > 10µm collection
Collection Efficiency	>90% for hydrophobic and hydrophilic particles
Collection Medium	Water, buffer, genomic preservative, nutrient broth, artificial saliva, or other liquids and substrates
Condensing Fluid	Water, distilled or cleaner
Sample Flow Rate	8.0LPM, approximates the flow rate of the human lung
Sampled Aerosol Conditions	Non-corrosive 0 – 40 degrees C
Collection Reservoir	Collection into a 35mm x 11mm petri dish
Communications	USB communications output for sampling parameters and instrument status
Sample Inlet	10mm OD SS tube
Environmental Operating Conditions	10 – 35 degrees C, 0 – 100% RH non-condensing
Dimensions	760 mm (H) x 457 mm (W) x 370 mm (D) (30 x 18 x 14.5 inches)
Weight	24 Kg / 53 lbs
Power Requirements	Power 85-264 VAC/47-63Hz

For a complete listing of the BioSpot-VIVAS bioaerosol collector specifications, please visit our website at https://aerosoldevices.com/biospot-vivas-bioaerosol- sampler/ . Specifications are subject to change without notice.
Aerosol particle collector technology is licensed from Aerosol Dynamics Inc. with U.S. Patents #6712881, #7736421, #8801838, German Patent #10392241 and Japanese Patent #5908475. Other patents pending. A grant from the National Institutes of Health (1 RC3 ES019081-01) funded the collector development.

How does it work?



The BioSpot-VIVAS bioaerosol sampler uses a patented, three-stage “moderated” condensational system to enlarge aerosol particles and then gently deposit them by inertial impaction.

The initial cold “conditioner” establishes a controlled vapor saturated aerosol stream largely independent of the incoming sample flow conditions. The warm walls of the “initiator” provide a region high of partial pressure of water vapor.

Supersaturation occurs in the second region as a result of the difference in the diffusive rates of water vapor and heat transport.

The final cool “moderator” region allows continued droplet growth while reducing the flow temperature and water vapor content.

The sampler deposits the droplets into a 2mL, 35mm diameter petri dish, cooled to a temperature convenient to the user.

Petri Dish (2mL, 35mm diameter) & temperature-controlled holder

Company

Who We Are:
We are a team of engineers and scientists passionate for revolutionizing the science of airborne particle collection and counting for physical, chemical and biological analysis.

Aerosol Devices was formed in 2014 by Ms. Pat Keady and Dr. Susanne Hering, both past Presidents of the American Association for Aerosol Research (AAAR) and leaders in the field with numerous aerosol measurement patents and publications. Handix Scientific Inc. acquired Aerosol Devices in 2022.

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