

## Purpose

The BioSpot-GEM™ bioaerosol sampler uses water condensation capture for highly efficient collection of bioaerosols in an easy-to-use and portable package.

- Environmental and IAQ professionals can sample the air for pathogens with the confidence of an aerosol research expert.
- High quality particle sampling onto a swab or liquid
- Collects 10nm to 10um particle sizes with equal effectiveness
- Concentrated, contamination-free collection
- Small, lightweight, and quiet operation
- Analysis compatible with virus/microbial testing methods, such as PCR and sequencing



## Features

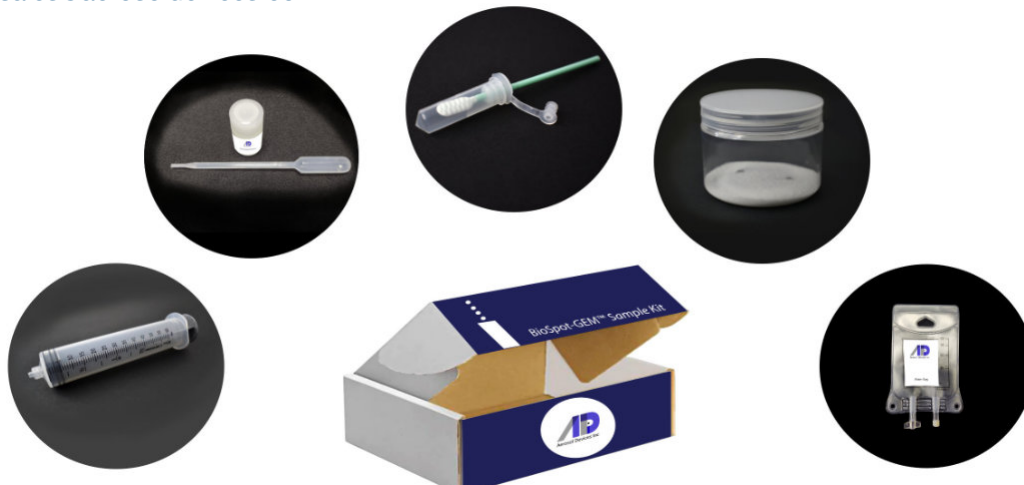
- Collects viruses, bacteria, fungal spores, toxins, proteins, allergens, and other aerosol with high collection efficiency
- Gentle impaction and minimal heating of airflow maintains microorganism viability upon capture
- Non-invasive collection of particles from exhaled breath
- Infectious disease surveillance and IAQ mitigation assurance
- Suitable for indoor, public, industrial, medical, and agricultural environments
- Concentrated sample deposition improves analysis sensitivity (LOD/LOQ)
- Designed for field applications, with the precision of a lab research instrument

## Collection Methods

### Swab Sampling Method

- Deposits directly onto swabs for concentrated, easy to transfer sample
- Sample directly onto stabilizer (patent pending) for instant DNA/RNA preservation
- Ability to adjust sampling time on each swab from 1 minute to 24 hours

The BioSpot-GEM sampler includes a starter sample kit for immediate use (8 samples). Kits and individual accessories are available at [aerosoldevices.com](http://aerosoldevices.com) or by emailing [sales@aerosoldevices.com](mailto:sales@aerosoldevices.com)



### Optional Liquid Sampling Kit

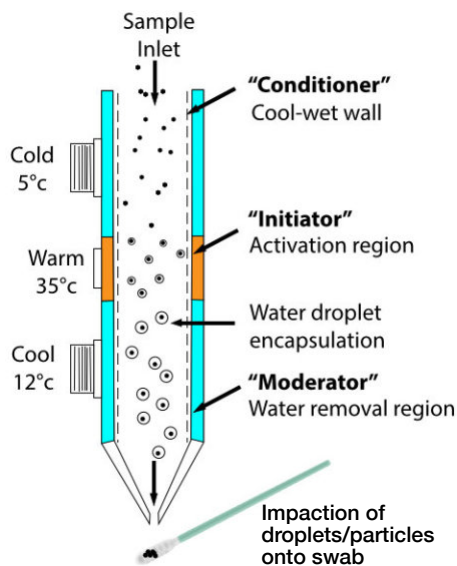
- Liquid sampling is preferred method for viable capture of bioaerosol
- Particle collection into almost any liquid with collection volume from 300uL to 700uL
- Polycarbonate vials are available in ported and non-porting configurations



Collection Substrate	Sterilized commercial swab; Single solid 'well' for concentrated spot samples; Can include liquid sampling kit to sample into 500uL liquid vial
Particle Size Range & Collection Efficiency	>95% for swab collection of particles 5nm to >10µm >95% for solid collection of particles 5nm to >10µm >90% for liquid collection of particles 5nm to 10µm
Particle Concentration Range	Zero to 10 <sup>5</sup> particles/cm <sup>3</sup>
Condensing Fluid	Water, distilled or cleaner
Sample Flow Rate	1.2 L/min
Sampled Aerosol Conditions	Non-corrosive 0 – 40 degrees C
Sample Components	Sterile swab can be pretreated with genomic preservative for ease of sample handling
Sample Time	Two preset user-adjustable sample times from 1 minute to 24 hours per sample
Controls	3-position dial for setup and sample start duration
Status Indicator Lights	4-color LED indicating warm-up/ready (yellow), sampling/setup (green), standby/off (blue), error (red).
Communications	USB serial communications for setting sample time options; output for sampling parameters and instrument status
Environmental Operating Conditions	10 – 35 degrees C 10 – 95% RH, non-condensing
Sample Line Cleaning	Ozone, alcohol rinse, hydrogen peroxide
Instrument Decontamination	Recommended vaporized hydrogen peroxide, other methods possible per experimental needs
Sample Inlet	10mm OD SS tube
Noise	Quiet for unobtrusive sampling, home use; 48dB; about as loud as a home refrigerator
Power	90-264 VAC/47-63 Hz; output voltage is 12.0 V DC and output current is 15A (maximum)
Dimensions	241 mm (H) x 243 mm (W) x 203 mm (D) (9.5 x 8.4 x 8.0 inches)
Weight	4.5 Kg (10 lb)

For a complete listing of BioSpot-GEM bioaerosol sampler specifications, please visit our website at <https://aerosoldevices.com/biospot-gem-bioaerosol-sampler/>. 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.

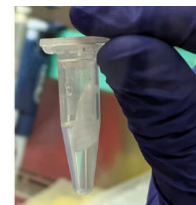
## How does it work?



The BioSpot-GEM uses a patented water condensation growth tube (CGT) to encapsulate airborne particles into liquid water droplets and gently deposit the droplets onto the surface of your choice. This technique substantially improves the efficiency and quality of collection of bioaerosols (<10nm to 10µm), sampling directly onto a sterile stabilized swab or directly into liquid.

Whereas other techniques suffer from desiccation, mechanical stress, thermal stress, and re-aerosolization, the BioSpot-GEM sampler is efficient in collecting particles in public settings without distraction. Additionally, the water condensation growth tube technique has been published in many studies specifically searching for viable capture of bioaerosols. For more information, see our video at [aerosoldevices.com](https://aerosoldevices.com).

After swab sample completion, downstream transfer is simple:



## 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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