

Airborne Particle Collection — a better way

A new kind of airborne particle collector enables affordable, time-resolved characterization of particulate chemical composition at multiple locations. Using well-known water condensation technology similar to that developed for condensation particle counting, the **SPOT SAMPLER** collector provides uninterrupted collection of particulate matter as concentrated dry deposits into small wells, or as a suspension in a small volume of liquid.

Advantages

- High particle collection efficiency with no particle bounce — >95% from 5nm to 2.5µm for dry collection; >90% up to 10µm for liquid collection
- New 3-stage condensation growth technology with minimal heating of the airflow minimizes loss of volatile constituents, reduces thermal decomposition, and maintains microorganism viability
- Uninterrupted, time-resolved sampling from minutes to hours
- Concentrated sample deposition with small volume extraction improves analysis sensitivity (LOD/LOQ)
- Automation of laboratory sample handling for higher data quality and lower cost

Who We Are

Aerosol Devices Inc. was formed in 2014 by two professional “women in aerosols”. Both of the company’s founders, Ms. Pat Keady and Dr. Susanne Hering, are past Presidents of the American Association for Aerosol Research (AAAR) and leaders in the field with numerous aerosol measurement patents and publications.

Mission

Our mission is to offer superior aerosol measurement capabilities that advance scientific knowledge, which can lead to improving the environment, health, safety, and quality of life.

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.

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Revolutionizing the science of airborne particle collection for chemical & biological analysis



Collecting and processing filter samples for chemical or biological analysis is labor intensive, tedious, and prone to contamination and filter artifacts, but what other options are there?

Advanced technologies have greatly improved analytical accuracy, sensitivity, and specificity. However, the results are only as good as the sample provided.

Now, there is a better option for particle sampling worthy of today's advanced analytics...

The all new **SPOT SAMPLER™** particle collector is revolutionizing the way airborne particles are collected and analyzed.

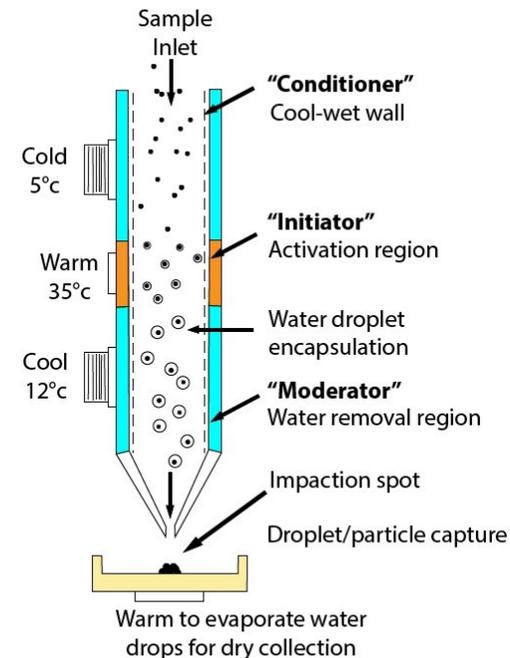


How It Works

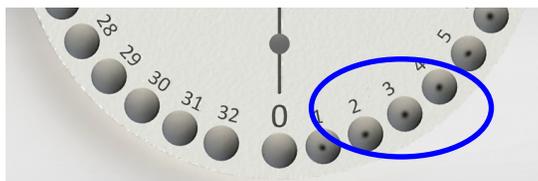
The SPOT SAMPLER collector grows aerosol particles through water condensation, and then gently deposits them by inertial impaction. Samples may be concentrated as a dry spot on a solid substrate, or captured directly into liquid.

Droplet growth occurs at temperatures close to ambient (25-30°C) providing robust collection for volatile constituents and microorganisms.

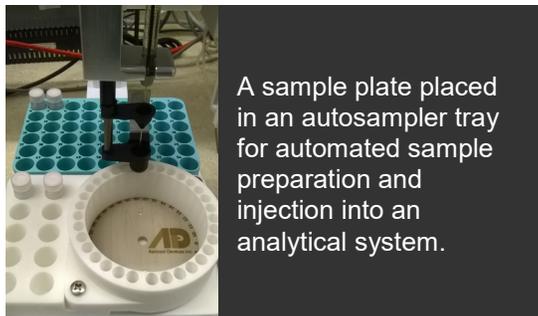
With dry collection, sequential samples can be collected in a multi-well plate, in accordance with the user-selected sampling interval. Laboratory-based analysis of the well plate, for example by ion chromatography or HPLC, is fully automated with an autosampler handling the solvent and standards addition, extraction, and sample injection without requiring any user manipulation.



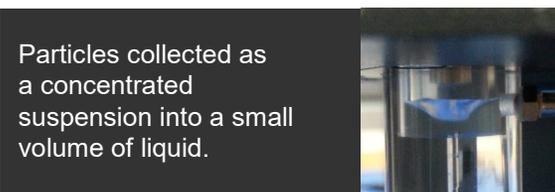
Schematic of the moderated three-stage condensation growth tube and inertial collection into a well in the sample plate.



Multi-well sample plate with time-resolved, concentrated, dry 1-mm deposits forming a particle "spot" in each 75- μ L well.



A sample plate placed in an autosampler tray for automated sample preparation and injection into an analytical system.



Particles collected as a concentrated suspension into a small volume of liquid.

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