Series 110A Spot Sampler™ aerosol particle collector

*Instruments designed for efficient, concentrated collection of nanometer to micrometer-sized aerosol particles*

**Advantages**

- High particle collection efficiency with no particle bounce
- >95% from 5 nm to 2.5 µm for dry collection; >90% up to 10 µm for liquid collection
- 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 improves analysis sensitivity (LOD/LOQ)
- Automation of sample handling eliminates tedious and time consuming sample prep

**Applications**

- Air Quality
- Health Effects
- Aerosol chemistry and physics
- Bioaerosol collection
- Infectious disease transmission
- Biomass burning
- Climate studies
- Nano-particle processes
- Occupational health
- Semiconductor micro-particle contamination

*And more!*

**Collection Modules**

1. Universal Spot Sampler (SSS110A)- both dry collection and liquid collection
2. Sequential Spot Sampler (SS110A)- dry collection
3. Liquid Spot Sampler (LS110A)- liquid collection

**How does it work?**

The Spot Sampler collector 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.

Samples may be concentrated as a ~ 1 mm “spot” deposit 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 as small as 5 nm in diameter.
Particle Size Range
5 nm to > 2.5 µm dry collection; 5 nm to > 10 µm wet collection

Collection Efficiency
>95% for dry collection; >90% for wet collection

Condensing Fluid
Water, distilled or cleaner

Sample Flow Rate
1.0 – 1.5 L/min (user adjustable)

Sampled Aerosol Conditions
Non-corrosive 0 – 40 degrees C

Communications
USB communications output for sampling parameters and instrument status

Environmental Operating Conditions
10 – 35 degrees C 10 – 95% RH

Dimensions
50 cm (H) x 31 cm (W) x 26 cm (D) (19.5 x 12 x 10 inches)

Weight
6.8 Kg (15 lb) Growth Tube unit; add 1.1 Kg (2.5 lb) for Sequential Spot Collector module; add 0.1 Kg (0.22 lb) for Liquid Spot Collector module

Power Requirements
Power 90-264 VAC/47-63 Hz; output voltage is 12.0 VDC and output current is 15A (maximum)

For a complete listing of the Spot Sampler particle collector specifications visit our website at https://aerosoldevices.com/products/specifications-spot-sampler/ . PEEK® is a registered trademark of Vitrex Manufacturing Limited. Specifications are subject to change without notice.

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. A grant from the National Institutes of Health (1 RC3 ES019081-01) funded the collector development.

Who We Are
A team of engineers and scientists passionate for revolutionizing the science of airborne particle counting and collection for physical, chemical and biological analysis. Aerosol Devices Inc. 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.

Contact Information:
Aerosol Devices Inc.
Fort Collins, CO 80525 USA
Phone: +1-970-744-3244
Email: Info@aerosoldevices.com
Website: aerosoldevices.com