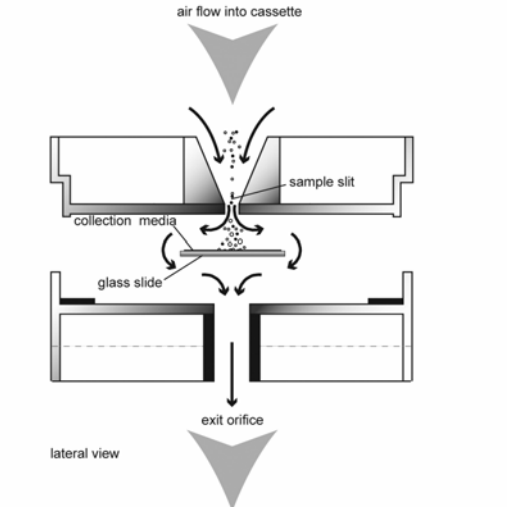
The Air-O-Cell® CSI Cassette

What It Is And How It Works:

The ***Air-O-Cell Collector for SEM Identification (CSI)*** is a unique sampling cassette specifically designed for the rapid collection and quantitative and elemental analysis of a wide range of airborne aerosols. With the ***Air-O-Cell* CSI** you can use optical and scanning electron microscopy and x-ray analysis on the exact same air sample. The ***Air-O-Cell* CSI** collects both viable and non-viable particulate such as mold spores, pollen, insect parts, skin cell fragments, fibers (asbestos, fiberglass, cellulose, etc.) and inorganic particles.

AIR FLOW PATH OF THE *Air-O-Cell* CSI



The air flow pathway through the ***Air-O-Cell®* CSI** Air Sampling Cassette is illustrated above. As the particulate-laden air enters the cassette, it meets the sampling substrate upon which the particles become impacted, while the air flow continues out through the exit orifice.

The design of the air flow pathway creates a deposition of airborne particulate (the "trace") on the adhesive coated glass slide contained in the cassette housing.

After the sample is taken, the glass slide is removed and direct microscopic analysis and/or SEM (Scanning Electron Microscopy) can be immediately performed.

The collection efficiency of the *Air-O-Cell* CSI cassette has proven to have stable performance at temperatures down to 0°F (depending on humidity).

Recommended Sampling Procedures:

The ***Air-O-Cell®* CSI** Air Sampling Cassette is designed to operate at an optimal flow rate of 15 lpm. Lower flow rates may result in a loss of particulate since impaction will be lessened. Conversely, higher flow rates may damage the morphology of some materials (e.g. pollen, mold spores) of interest. See Table 1 for the air flow velocity which can be expected at the recommended sample flow rate.

Table 1

Air Flow Velocity Guide At Orifice And Slit Face

Sample Flow Rate (lpm)	Velocity at inlet of sample port (fpm)	(mph)	Velocity at sample slit (fpm)	(mph)
15	299	3.4	4440	50.5

Calibration of Sampling Flow Rate:

A rotameter calibrated to a primary standard, soap bubble tube/meter or a dry bubble meter should be used to calibrate your pump to a flow rate of 15 LPM. Some pumps only work with specific calibration devices. Please reference the owner's manual for your pump to verify if any special calibration methods should be employed.

Sampling Period:

The Sample Collection period is dependent upon the density of the particulate in the environment. Table 2 represents typical sample times to attain a particle deposition on the slide in which the edges of the trace are sharply defined and the particles dispersed well enough to enable good microscopic evaluation.

Table 2

RECOMMENDED SAMPLING INTERVALS

Environmental Dust Conditions	Sampling Time (minutes) @ 15 lpm
• Outdoor sampling on a clean windless day	**10 min.**
• "Clean" office environment or outdoors (no visible dust)	**10 min.**
• "Indoor" environment, high activity personnel	**5 min.**
• "Indoor" environment, evidence of drywall renovation or industrial dust	**1 min.**
• "Indoor" environment, visible dust emissions from point sources present	**0.5 min.**

Sampling Procedures

1. Remove and retain tape seals covering the ***Air-0-Cell®* CSI** inlet and outlet.
2. Connect the outlet (round hole end) to the pump tubing.
3. Start the sampling pump and sample for an appropriate period of time. See above chart for sampling times.
4. Remove ***Air-0-Cell®* CSI** cassette from tubing and reseal with the original tape.
5. To reduce the possibility of damage to the cassette during shipping, it is recommended that the ***Air-0-Cell®* CSI** cassette be placed in a corrugated box. The cassette can now be safely transported to a lab for analysis without contamination or loss of sample.

Control Sample Suggestions:

The following suggestions are recommended and will help to interpret results:

1. Obtain an outdoor ambient sample to examine the differences and amplification of particles indoors.
2. Obtain an indoor sample from a non-complaint area for sample comparison.

Optical Analysis

A laboratory manual for optical analysis may be obtained by calling customer service at 352-854-8080, or toll free 1-800-282-0073.

Storage:

To optimize shelf life and performance, it is recommended to store the *Air-O-Cell* CSI cassettes in the original carton, placed flat, in dry environment between 60°F and 80°F .

KNOW THE Genuine Zefon DIFFERENCE

All particle samplers are not created equal and will not provide the same results. All Zefon products provide you with assurance of validated, industry-proven performance and the highest quality product.

Ordering Information

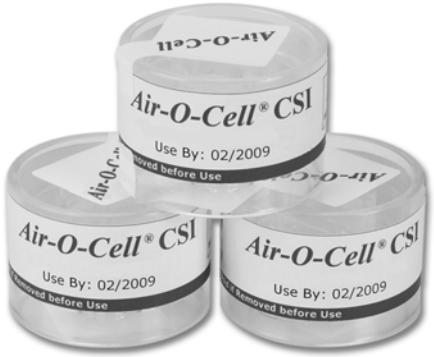
Product No.	Description
CSI010	Air-O-Cell CSI, 10/box
AOCIW10	Inner Wall Adapter, 10/box
AOCCAL	In-Line Calibration Adapter

Zefon INTERNATIONAL

Sampling Equipment Specialists

5350 SW 1st Lane, Ocala, FL 34474 USA
Phone +1 (352) 854-8080
Toll Free: 1-800-282-0073
Fax: +1 (352) 854-7480
www.zefon.com

User's Manual
for the
Air-O-Cell ® CSI
Particle Sampling Cassette



Applications

Indoor Air Quality

Building Restoration & Remediation

Home Inspections

Allergy Testing

Clean Room Monitoring

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