



## Microbiology Sampling Protocol

### For use with Air-O-Cell Cassettes

This is a general list of procedures to follow in order to ensure quality and accuracy of analysis. Please refer to the User Manual of the cassette and / or pump for a complete list of instructions.

Field Equipment:      Calibrated Pump and Timer  
                                  Air-O-Cell Cassettes  
                                  Permanent marker

- 1) Before testing, be sure the flow rate of your pump is calibrated to 15 L/min\* using a rotameter (refer to owner’s manual of pump for any special calibration methods).
- 2) Be sure to have at least three extra cassettes for each job: one for outside sample(s), one for a non-complaint / non-suspect area (if possible), and one for a blank sample. As a general rule, use at least one air cassette for every 1,000 square feet of space to be tested. NOTE: Be sure to check expiration dates.
- 3) Using a permanent marker, write a unique sample number or the location of sampling on the side of the cassette.
- 4) Once you are ready to sample, remove the tape from the inlet and the outlet orifice of the cassette. Connect the cassette to the sampling pump using flexible tubing, or insert the cassette into the mini-pump machine as instructed by the user manual.
- 5) Determine the appropriate sampling duration. (See Table 1 for Zefon’s Recommended Sampling Intervals.)

Table 1: Recommended Sampling Intervals for the Air-O-Cell Cassette

Site Location	Sampling Duration (Minutes)	Total Volume
“Clean” office environment or Outdoors	10.0	150 L/min.
“Indoor” environment, high activity personnel	5.0	75 L/min.
“Indoor” environment, evidence of drywall renovation, or industrial dust	1.0	15 L/min.
“Indoor” environment, visible dust emissions from point sources present	0.5	7.5 L/min.

- 6) Turn the pump on and sample for the allotted time. NOTE: Zefon notes that the cassette can be oriented in any vertical or horizontal direction.



7) Turn off the pump, remove the cassette from the tubing or the bio-pump, and replace the tape over the inlet and outlet orifices of the cassette. NOTE: Do not pull the tubing off the cassette while the pump is on; this may cause a suction pull to crush the slide inside the cassette.

8) Write the sample information on the SanAir Technologies Laboratory Chain-of-Custody:

Sample Number (i.e. a unique sample number or the serial number of cassette)

Sample Identification (e.g. location of sampling)

Sample Type (AC)

Analysis Type (A1 or A2)

Turn-Around-Time (3, 6, 24, or 48 hours)

Total Volume: Total Volume in Liters is equal to the flow rate of your pump (e.g. 15 L/min) multiplied by the duration of sampling (e.g. 5 minutes). For example, an air cassette sample that was pulled for 5 minutes on a pump calibrated to 15 L/min would have a total volume of 75 L/min ( $15 \text{ L/min} \times 5 \text{ min} = 75 \text{ L/min}$ )

Time (Start – Stop): In order to keep track of the duration of sampling, the start and stop times of sampling (or the total time for sampling) may be noted. NOTE: If the start and stop times are noted on the COC, but the Total Volume is left blank, then the flow rate of the pump must be noted in Special Instructions so that the Total Volume can be calculated.

9) Sample the remaining sites, following steps 3 - 8 for each cassette.

10) Make sure the package used for shipping is well cushioned to avoid breakage.

\* Zefon International recommends the flow rate always be set at 15 L/min for optimal collection efficiency for all particle types found in indoor and outdoor air. Zefon states that flow rates higher than 20 L/min may cause large particles (e.g. pollen grains) to “bounce off” the collection media, and flow rates lower than 10 L/min may not cause enough impact for smaller particles (e.g. Aspergillus and Penicillium) to stick to the collection media.

## References



Air-O-Cell Bioaerosol Sampling Cassette Laboratory & User Manual (Zefon International, LA03040 Rev.1, 2009)

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