

## ERMI SAMPLING INSTRUCTIONS

### Introduction

These instructions were adapted from the sampling method used in the HUD American Healthy Homes Survey. Alternate composite dust sampling methods for residential buildings may be employed (AIHA 1996, ACCGIH 1999).

### Application

Dust from carpet, window drapes, office furniture and fiberglass liner from HVAC duct can be collected in several ways including the DustChek™. The samples are then analyzed for the presence of 36 species of molds using a mold specific quantitative PCR process that relies on the unique DNA signature of each mold species. The 36 molds are divided in two groups. The first group is comprised of species associated with water damage and the second group contains common indoor molds. For an area of interest the composition and quantities of those molds, as determined by PCR, are used to calculate an index for the “moldiness” of the indoor environment. This so called Environmental Relative Moldiness Index (ERMI) can be used to evaluate potential risks of indoor mold growth. More information is available at [www.aerotechpk.com/ermi](http://www.aerotechpk.com/ermi) and soon at [www.emlab.com](http://www.emlab.com).

### Required Equipment for DustChek™

- DustChek™ Cassette (Cat. # 003-2026-00)
- AeroDust Vacuum System – AVS (Cat. # 003-2127-00), HEPA AVS Vacuum System (Cat. # 003-3082-00), or standard household vacuum equivalent.
- Zip-type Bags (Cat. # 012-2035-00)

### Sampling Method(s)

Select the most commonly occupied living area and choose an area to sample where dust is likely to have settled and accumulated. Designate approximately 2 m<sup>2</sup> (18 square feet) to be sampled. If the sampling area cannot accommodate these dimensions, adjust accordingly, but try to maintain a total sample area of 18 square feet. The goal is to collect a minimum of 10 mg of dust. A good amount for the analysis is 100 mg or half thimble full of dust. Wet areas should not be sampled, as dust will not likely be drawn into the cassette.

### DustChek™ Sampling

1. Remove the top and bottom caps and set aside, retaining for later use. Check to make sure the cassette contains the collection filter.
2. Insert the hose attachment of the vacuum into the broader, wide end of the cassette.
3. Start the vacuum. Begin to collect dust from the designated area by placing the narrow, oval-shaped end of the DustChek™ in contact with the sampling surface. Slightly tilt the sampler to one side to allow a slight gap between the sampling surface and the sampler. (A sampler that is allowed to remain flush against the sampling surface will decrease vacuum efficiency by restricting airflow and will prevent sample uptake).
4. Slowly sweep the sampling area from one end to the other using overlapping passes, adjusting the rate until the entire 18 square feet is covered over the course of the five minute sampling period.
5. Turn off the vacuum. To prevent loss of material, tilt the cassette nozzle upward before turning off the vacuum.
6. Remove the DustChek™ from the hose and visually inspect it to verify it contains enough sample. If more dust needs to be collected, repeat steps three through five.
7. Replace the caps onto the cassette ends and place the cassette directly into zip-type bag. Do not tap the DustChek™ as the micro-fine dust is needed for analysis. Label the sample appropriately and record the sample description on the Chain of Custody form.

### References

1. American Conference of Governmental Industrial Hygienists, 1999, Bioaerosols: Assessment and Control, Chapters 4, 12, 18, and 22.
2. American Industrial Hygiene Association, 1996, Field Guide for the Determination of Biological Contaminants in Environmental Samples.
3. Indoor Environmental Standards Organization (IESO), 2002, Standards of Practice for the Assessment of Indoor Environmental Quality. (1st ed.) Minneapolis, MN: IESO.
4. Meklin, T.M., Haugland, R.A., Reponen, T., Varma, M., Lummus, Z., Bernstein, D., Wymer L.J., Vesper, S.J. Quantitative PCR analysis of house dust can reveal abnormal mold conditions. *Journal of Environmental Monitoring*, 2004, 6: 615-620.
5. Vesper S. Developing the EPA Relative Moldiness Index© based on mold-specific quantitative PCR. *The Synergist*, April 2006: 39-43.