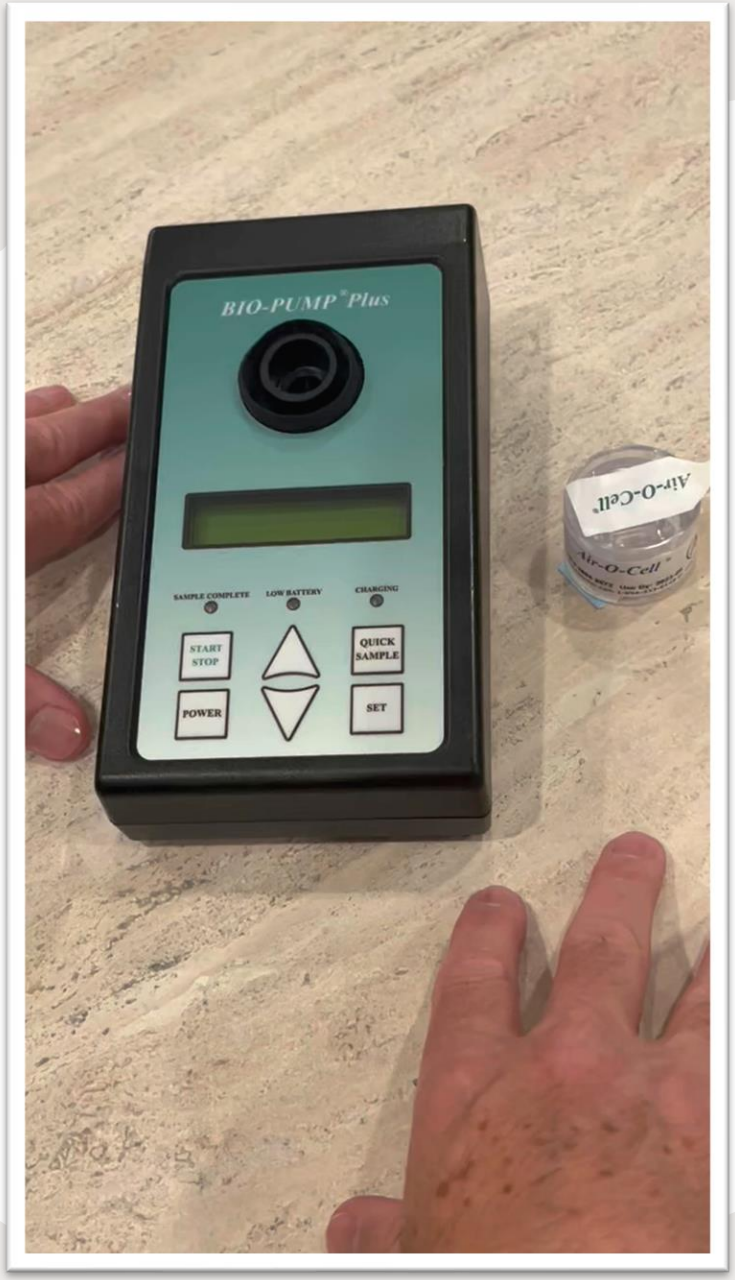
Change THE AIR FOUNDATION

Testing 101

Air Spore Trap Testing

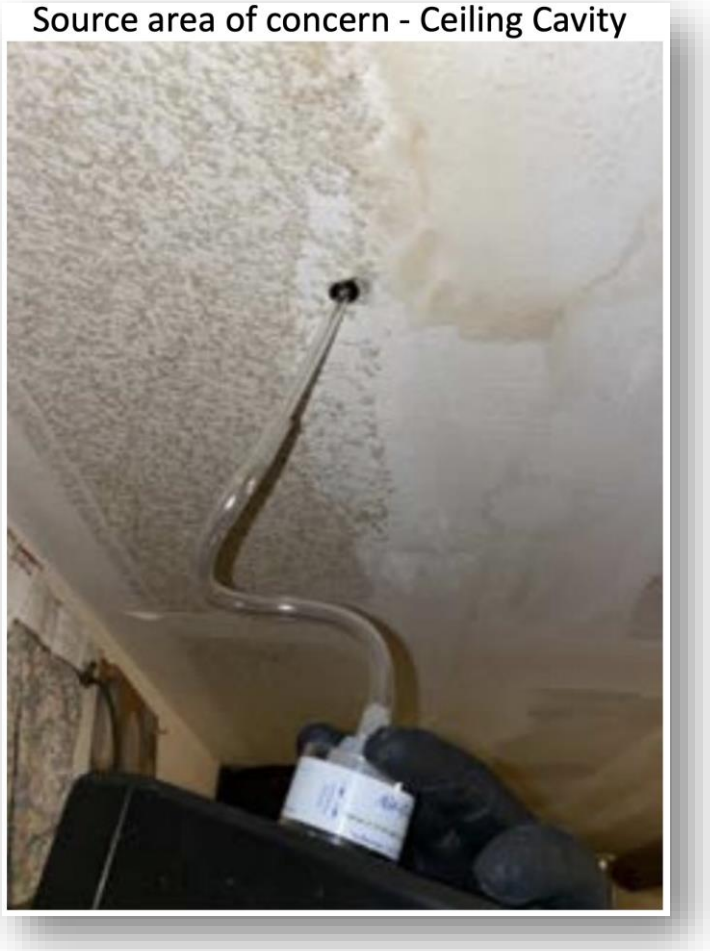
AIR SAMPLING

- Strengths and Limitations.
- When should air samples be used?
- How to read an air sample lab report.
- *Video of*: The most widely used and accepted method of air sampling performed in the indoor air quality industry.



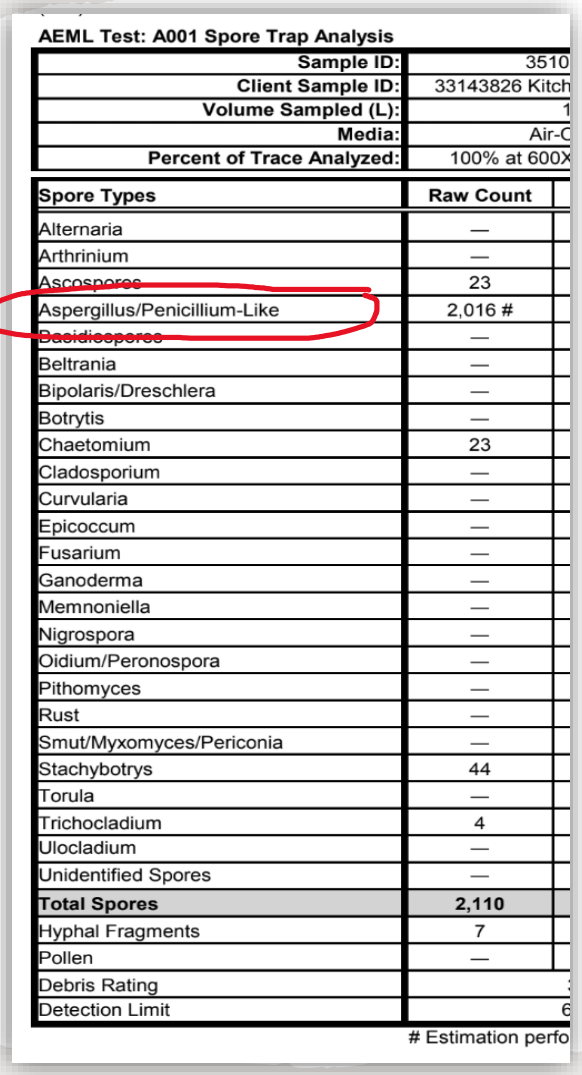
STRENGTHS

- Rapid collection of mold spores.
- Identifies viable and nonviable spores.
- Quick turnaround times for analyzed results.
- Used to pinpoint source areas of concern:
  - Inside wall cavities and ceiling cavities.
  - Inside cabinets, attics and other confined spaces.
- A helpful component for post remediation verification testing.



LIMITATIONS

- Air samples are a snap shot in time.
- Air samples have a lot of variability in results.
- Can only analyze to the genus level not the species level.
- At the genus level mycologist cannot distinguish between specific molds:
  - At the genus level Aspergillus and Penicillium cannot be distinguished from one another, because of this they are paired together.
  - For this reason, air sampling is used with other sampling methods in order to differentiate individual species.



AEML Test: A001 Spore Trap Analysis

Sample ID:	3510
Client Sample ID:	33143826 Kitch
Volume Sampled (L):	1
Media:	Air-C
Percent of Trace Analyzed:	100% at 600X

Spore Types	Raw Count
Alternaria	—
Arthrinium	—
Ascospores	23
Aspergillus/Penicillium-Like	2,016 #
Basidiospores	—
Beltrania	—
Bipolaris/Dreschlera	—
Botrytis	—
Chaetomium	23
Cladosporium	—
Curvularia	—
Epicoccum	—
Fusarium	—
Ganoderma	—
Memnoniella	—
Nigrospora	—
Oidium/Peronospora	—
Pithomyces	—
Rust	—
Smut/Myxomyces/Periconia	—
Stachybotrys	44
Torula	—
Trichocladium	4
Ulocladium	—
Unidentified Spores	—
Total Spores	**2,110**
Hyphal Fragments	7
Pollen	—
Debris Rating	
Detection Limit	6

Estimation perfo

WHEN SHOULD AIR SAMPLES BE USED

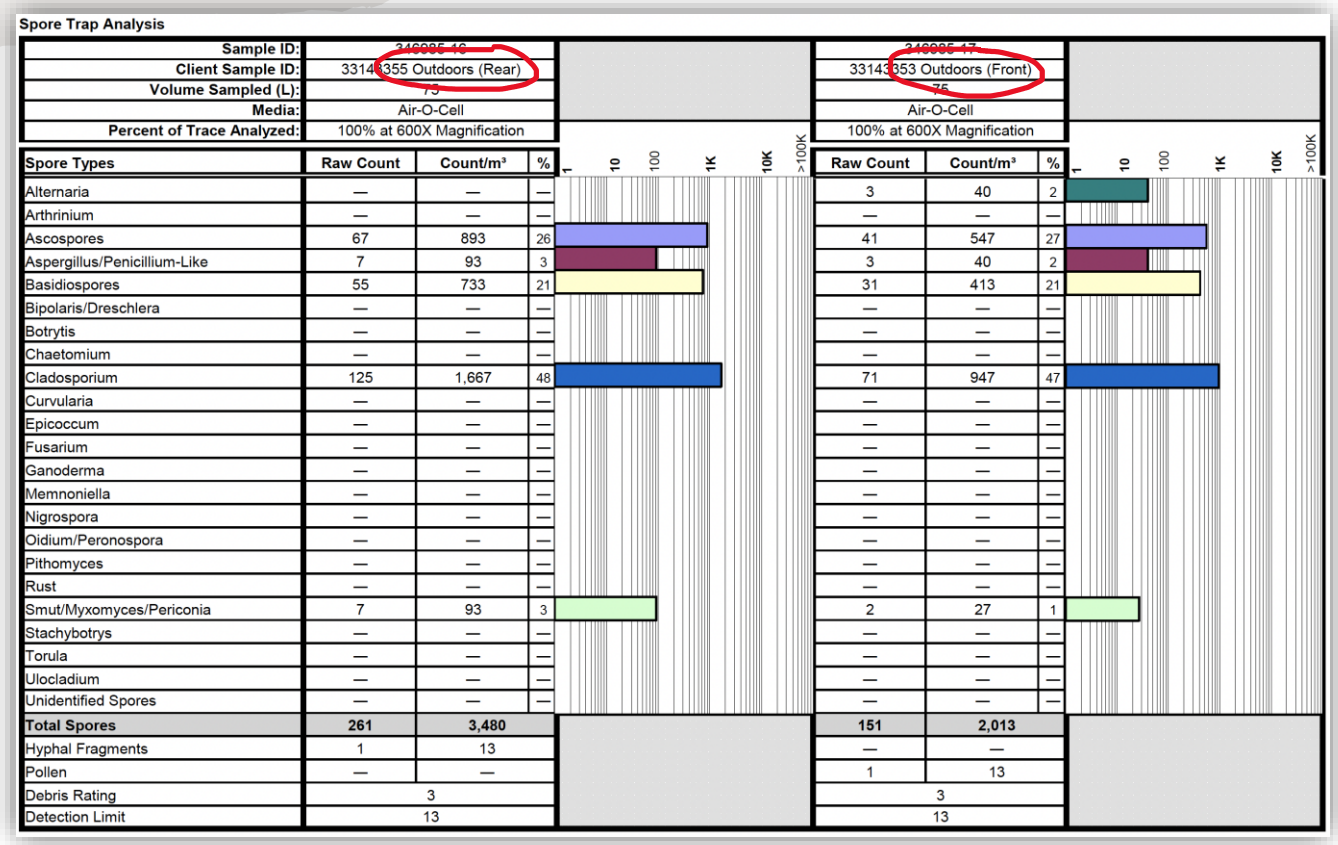
- To locate source areas of contamination:
  - Source areas include any building material where mold growth and water damage has occurred.
- Air sampling to validate hidden mold behind wet and/or water damaged building materials:
  - Example; inside wall, ceiling cavities and some closets.
- Air sampling in confined spaces:
  - Example; cabinets, attics and crawl spaces.

Continued

- Air sampling is used along side other sampling methods to ascertain the true impact of an environment.
  - *3 types of labs*: Source, Dispersion & Progressive labs.
- Post Remediation Verification testing confirms if the impacted area was properly cleaned:
  - In contained work areas.
  - Adjacent to contained areas are tested to confirm it was not cross contaminated.
- Legal cases performing air samples with other sampling methods.

HOW TO READ AIR SAMPLE LAB REPORT

- Ambient room air samples are compared to the outdoor baselines:
  - Mold spores are ubiquitous.
  - Ambient room air is influenced by the outdoors.
- Confined spaces are not compared to outdoor baselines:
  - Wall cavities.
  - Kitchen cabinets.
  - Not influenced by the outdoors.



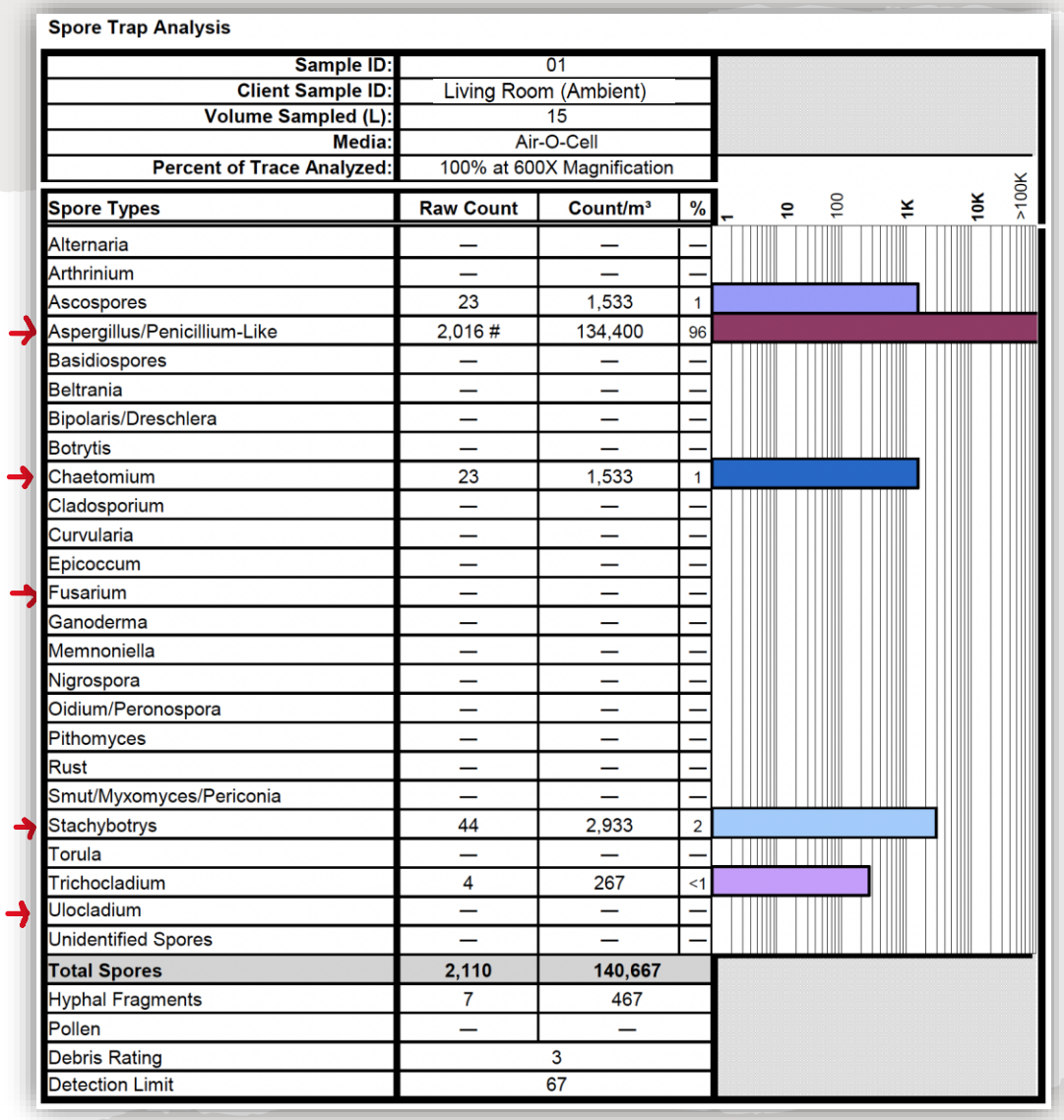
Spore Trap Analysis

Sample ID:	[redacted]	[redacted]
Client Sample ID:	33143355 Outdoors (Rear)	33143353 Outdoors (Front)
Volume Sampled (L):	75	75
Media:	Air-O-Cell	Air-O-Cell
Percent of Trace Analyzed:	100% at 600X Magnification	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%	Raw Count	Count/m³	%
Alternaria	—	—	—	3	40	2
Arthrinium	—	—	—	—	—	—
Ascospores	67	893	26	41	547	27
Aspergillus/Penicillium-Like	7	93	3	3	40	2
Basidiospores	55	733	21	31	413	21
Bipolaris/Dreschlera	—	—	—	—	—	—
Botrytis	—	—	—	—	—	—
Chaetomium	—	—	—	—	—	—
Cladosporium	125	1,667	48	71	947	47
Curvularia	—	—	—	—	—	—
Epicoccum	—	—	—	—	—	—
Fusarium	—	—	—	—	—	—
Ganoderma	—	—	—	—	—	—
Memnoniella	—	—	—	—	—	—
Nigrospora	—	—	—	—	—	—
Oidium/Peronospora	—	—	—	—	—	—
Pithomyces	—	—	—	—	—	—
Rust	—	—	—	—	—	—
Smut/Myxomyces/Periconia	7	93	3	2	27	1
Stachybotrys	—	—	—	—	—	—
Torula	—	—	—	—	—	—
Ulocladium	—	—	—	—	—	—
Unidentified Spores	—	—	—	—	—	—
Total Spores	**261**	**3,480**		**151**	**2,013**	
Hyphal Fragments	1	13		—	—	
Pollen	—	—		1	13	
Debris Rating	3			3		
Detection Limit	13			13		

Continued

- In the lab report look for molds that are indicator molds of water damage:
  - Example; Aspergillus, Penicillium, Chaetomium, Stachybotrys, Ulocladium, Fusarium.
- Look for concentration levels:
  - Molds that are 10X higher than the outdoor baselines indicates it is coming from a source from within the home.
- How many different types of molds are present?
- A single mold with a higher percentage means it is most likely coming from a source from within the home.
- Concentration levels of hyphal fragments:
  - Indicates mold growth is within the home.



Spore Trap Analysis

Sample ID:	01
Client Sample ID:	Living Room (Ambient)
Volume Sampled (L):	15
Media:	Air-O-Cell
Percent of Trace Analyzed:	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%
Alternaria	—	—	—
Arthrinium	—	—	—
Ascospores	23	1,533	1
Aspergillus/Penicillium-Like	2,016 #	134,400	96
Basidiospores	—	—	—
Beltrania	—	—	—
Bipolaris/Dreschlera	—	—	—
Botrytis	—	—	—
Chaetomium	23	1,533	1
Cladosporium	—	—	—
Curvularia	—	—	—
Epicoccum	—	—	—
Fusarium	—	—	—
Ganoderma	—	—	—
Memnoniella	—	—	—
Nigrospora	—	—	—
Oidium/Peronospora	—	—	—
Pithomyces	—	—	—
Rust	—	—	—
Smut/Myxomyces/Periconia	—	—	—
Stachybotrys	44	2,933	2
Torula	—	—	—
Trichocladium	4	267	<1
Ulocladium	—	—	—
Unidentified Spores	—	—	—
Total Spores	**2,110**	**140,667**	
Hyphal Fragments	7	467	
Pollen	—	—	
Debris Rating	3		
Detection Limit	67		

Continued

- What is the debris rating?
  - The debris is the amount of particulate matter that shows up on the slide.
  - The debris rating is a range between 1 – 5.
  - The lower the debris rating the cleaner the slide is so it is easier to read.
  - The higher the debris rating the harder it is for the mycologist to view and identify all the types of molds that are present.
  - The sample is overloaded if the debris rating is 5. It will list molds that were observed and it will give a spore range instead of the spore counts.

Spore Trap Analysis

Sample ID:	01
Client Sample ID:	Kitchen (Under Sink)
Volume Sampled (L):	15
Media:	Air-O-Cell
Percent of Trace Analyzed:	100% at 600X Magnification

Spore Types	Raw Count	Count/m³	%
Alternaria	—	—	—
Arthrinium	—	—	—
Ascospores	23	1,533	1
Aspergillus/Penicillium-Like	2,016 #	134,400	96
Basidiospores	—	—	—
Beltrania	—	—	—
Bipolaris/Dreschlera	—	—	—
Botrytis	—	—	—
Chaetomium	23	1,533	1
Cladosporium	—	—	—
Curvularia	—	—	—
Epicoccum	—	—	—
Fusarium	—	—	—
Ganoderma	—	—	—
Memnoniella	—	—	—
Nigrospora	—	—	—
Oidium/Peronospora	—	—	—
Pithomyces	—	—	—
Rust	—	—	—
Smut/Myxomyces/Periconia	—	—	—
Stachybotrys	44	2,933	2
Torula	—	—	—
Trichocladium	4	267	
Ulocladium	—	—	
Unidentified Spores	—	—	
Total Spores	**2,110**	**140,667**	
Hyphal Fragments	7	467	
Pollen	—	—	
Debris Rating		3	
Detection Limit		67	

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