

ERMI ANALYTICAL REPORT

Client: David [REDACTED]
[REDACTED]
[REDACTED] TX [REDACTED] [REDACTED]
[REDACTED] [REDACTED]

Sample by: [REDACTED]
[REDACTED] [REDACTED]

Site Address: [REDACTED]
[REDACTED] TX [REDACTED] [REDACTED]

Project name: [REDACTED]

Sample Location:

.

Sample Type: Swiffer **Status:** Post-Remediation

Client Reference:

Client Comments:

Date of Sampling: November 20, 2018

Date Sample/s Received: November 26, 2018

Date of Report: December 05, 2018

Reported and Released By: David Lark, Mycologist.

Our Reference: 183641

P.O. 12498 **EB**

3 RESULTS

3.1 QPCR MOLD ANALYSIS

The results of the mold DNA detected in the sample submitted for analysis were tabulated as follows:

Group 1; Water Damage Molds	
Species	SE/mg
Aspergillus flavus/oryzae	6
Aspergillus fumigatus	N.D.
Aspergillus niger	49
Aspergillus ochraceus	81
Aspergillus penicillioides	53
Aspergillus restrictus	N.D.
Aspergillus sclerotiorum	5
Aspergillus sydowii	38
Aspergillus unguis	N.D.
Aspergillus versicolor	18
Aureobasidium pullulans	294
Chaetomium globosum	17
Cladosporium sphaerospermum	3,670
Eurotium (Asp.) amstelodami	523
Paecilomyces variotii	18
Penicillium brevicompactum	7
Penicillium corylophilum	N.D.
Penicillium crustosum	N.D.
Penicillium purpurogenum	19
Penicillium Spinulosum	34
Penicillium variabile	16
Scopulariopsis brevicaulis/fusca	13
Scopulariopsis chartarum	N.D.
Stachybotrys chartarum	43
Trichoderma viride	3
Wallemia sebi	45
Sum of Logs	30.6

Group 2; Common Indoor Molds	
Species	SE/mg
Acremonium strictum	N.D.
Alternaria alternata	18
Aspergillus ustus	32
Cladosporium cladosporioides1	776
Cladosporium cladosporioides2	3,652
Cladosporium herbarum	6
Epicoccum nigrum	938
Mucor amphibiorum	N.D.
Penicillium chrysogenum	50
Rhizopus stolonifer	N.D.
Sum of Logs	14.7

SE = Spore Equivalent
 SE/mg = SE/milligrams of sample
 ND = None Detected

Sample Size	4.9 mg
ERMI Results= (G1-G2)	15.9

4 CONCLUSIONS

4.1 The table at 3.1, shows the Spore Equivalent per milligram detected for each of the 36 environmental molds analyzed.

Mold species listed under Group 1 are known as Water Damage Mold.

The gray background on Group 1 table highlights the main mold (DNAs) detected in this report, which was selected based on their value being higher than tenfold of the geometric mean of the corresponding mold on the 2007 USA survey of molds. [9]

Using the full spectra of data obtained by MSQPCR for all molds detected in the panel, the ERMI was found to be:

Environmental Relative Moldiness Index (ERMI)	15.9	Interpretation	Q4
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ERMI score was developed by the US government for environmental mold safety (mold related asthma) and the score table is a general recommendation.

For patients with CIRS condition, in general, an ERMI score of 2 or less is considered safe. For more information please consult with your doctor for the best advice on how to interpret the results.

4.2 The interpretation was made with reference to the following table:

Level	ERMI Value	Interpretation	Comment
Q 1	Less than - 4	Low Relative Moldiness Index	Further investigation is not needed to determine the sources of the mold.
Q 2	-4 to < 0	Low - Medium Relative	Further investigation may be needed to determine the sources of the mold if occupants have been reactive, sensitized, genetically predisposed or otherwise immuno-compromised.
Q 3	0 to < 5	Medium- High Relative	
Q 4	5 to < 20	High Relative Moldiness Index	Source and cause of mold should be determined and remediation is undertaken, reducing the ERMI to levels below Q2.
	> 20	Very High Relative	

4.3 According to Vesper [9] ERMI Scores have an Standard Deviation (S.D.) of +/-3 and should be assessed with this in mind.

4.4 Further assessment was performed by calculating the HERTSMI-2 score from this data, which was found to be:

Species	Spore E./mg	Weighting
Aspergillus penicillioides	53	4
Aspergillus versicolor	18	4
Chaetomium globosum	17	4
Stachybotrys chartarum	43	6
Wallemia sebi	45	0
HERTSMI-2 Score =		18

4.5 The interpretation was made with reference to the following table:

Color-coded interpretation ⁹	
If 10 or below	In only 1.7% of cases, re-occupancy of building following mold remediation has led to relapse of CIRS-WDB symptoms
If between 11 to 15	Borderline. Further remediation and re-assessment is indicated
If greater than 15	Re-occupancy is ill-advised until further remediation and re-assessment are conclusive.

4.6 A spore equivalent may reflect the presence of any other fungal structures (i.e. mycelia) containing the same number of target genes as a spore.

4.7 Genetically close-related species may be detected in the indicator assay.

As reported	Includes
Eurotium (Asp.) amstelodami	E. chevalieri, E. herbariorum, E. rubrum and E. repens.
Penicillium spinulosum	P. glabrum, P. lividum, P. pupurescens, and P. thomii.
Trichoderma viride	T. koningii and T. atroviride.
Aspergillus restrictus	A. caesillus and A. conicus.
Mucor amphibiorum	M. circinelloides, M. hiemalis, M. indicus, M. mucedo, M. racemosus, M. ramosissimus.
Rhizopus zygosporus	R. homothalicus, R. microsporus, R. oligosporus, R. oryzae.
Penicillium crustosum	P. camembertii, P. commune, P. echinulatum, P. solitum.

EnviroBiomics, Inc.

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San Antonio, Texas, 78230**



DAVID LARK
Mycologist

ERMI ANALYTICAL REPORT

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[REDACTED]
[REDACTED] TX [REDACTED] [REDACTED]
[REDACTED] [REDACTED]

Sample by: [REDACTED]
[REDACTED] [REDACTED]

Site Address: [REDACTED]
[REDACTED] TX [REDACTED] [REDACTED]
Project name: [REDACTED]

Sample Location:
N/A

Sample Type: Swiffer **Status:** Post-Remediation

Client Reference:

Client Comments:

Date of Sampling: January 06, 2019
Date Sample/s Received: January 09, 2019
Date of Report: January 18, 2019

Reported and Released By David Lark, Mycologist.

Our Reference: 190116

P.O. 12886 **EB** 2068

3 RESULTS

3.1 QPCR MOLD ANALYSIS

The results of the mold DNA detected in the sample submitted for analysis were tabulated as follows:

Group 1; Water Damage Molds	
Species	SE/mg
Aspergillus flavus/oryzae	3
Aspergillus fumigatus	1
Aspergillus niger	11
Aspergillus ochraceus	61
Aspergillus penicillioides	79
Aspergillus restrictus	1
Aspergillus sclerotiorum	3
Aspergillus sydowii	4
Aspergillus unguis	1
Aspergillus versicolor	N.D.
Aureobasidium pullulans	1,901
Chaetomium globosum	1
Cladosporium sphaerospermum	332
Eurotium (Asp.) amstelodami	70
Paecilomyces variotii	1
Penicillium brevicompactum	3
Penicillium corylophilum	N.D.
Penicillium crustosum	N.D.
Penicillium purpurogenum	N.D.
Penicillium Spinulosum	12
Penicillium variabile	1
Scopulariopsis brevicaulis/fusca	5
Scopulariopsis chartarum	N.D.
Stachybotrys chartarum	3
Trichoderma viride	2
Wallemia sebi	18
Sum of Logs	18.2

Group 2; Common Indoor Molds	
Species	SE/mg
Acremonium strictum	1
Alternaria alternata	39
Aspergillus ustus	4
Cladosporium cladosporioides1	511
Cladosporium cladosporioides2	70
Cladosporium herbarum	6
Epicoccum nigrum	1,222
Mucor amphibiorum	3
Penicillium chrysogenum	10
Rhizopus stolonifer	N.D.
Sum of Logs	12.1

SE = Spore Equivalent
 SE/mg = SE/milligrams of sample
 ND = None Detected

Sample Size	5.1 mg
ERMI Results= (G1-G2)	6.1

4 CONCLUSIONS

4.1 The table at 3.1, shows the Spore Equivalent per milligram detected for each of the 36 environmental molds analyzed.

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Environmental Relative Moldiness Index (ERMI)	6.1	Interpretation	Q4
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4.3 According to Vesper [9] ERMI Scores have an Standard Deviation (S.D.) of +/-3 and should be assessed with this in mind.

4.4 Further assessment was performed by calculating the HERTSMI-2 score from this data, which was found to be:

Species	Spore E./mg	Weighting
Aspergillus penicillioides	79	4
Aspergillus versicolor	N.D.	0
Chaetomium globosum	1	0
Stachybotrys chartarum	3	0
Wallemia sebi	18	0
HERTSMI-2 Score =		4

4.5 The interpretation was made with reference to the following table:

Color-coded interpretation ⁹	
If 10 or below	In only 1.7% of cases, re-occupancy of building following mold remediation has led to relapse of CIRS-WDB symptoms
If between 11 to 15	Borderline. Further remediation and re-assessment is indicated
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