



# HYGIENETECH

Hygiene Technologies International, Inc.

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October 18, 2010

State of California  
Board of Equalization  
450 N Street  
Sacramento, California 94279

Document No. 21010001.3

Attention: David Gau

Regarding: Limited Fungal Growth Exposure Assessment Survey  
Day Care

Dear Mr. Gau:

On October 8, 2010, industrial hygienists with Hygiene Technologies International, Inc. (HygieneTech) conducted a limited fungal growth exposure assessment survey involving the Day Care facility located within the California State Board of Equalization (BOE) building. At the time of the survey, LaCroix Davis, LLC (LCD), the industrial hygiene consultant contracted with the State of California Department of General Services (DGS), were conducting carpet investigation and surface sampling in the Preschool Room of the Day Care. The survey findings, along with the analytical data, conclusions, and recommendations appear below.

On the survey date, air samples were collected for total (viable and nonviable) fungi analyses using a Zefon brand Bio-Pump™ equipped with Air-O-Cell™ cassettes. All such samples were subsequently analyzed for fungi (including yeasts, molds, rusts, smuts, and mushrooms) by trained and experienced microbiologists at a laboratory accredited by the American Industrial Hygiene Association (AIHA) and that successfully participates in the AIHA Environmental Microbiology Proficiency Analytical Testing (EMPAT) Program. The airborne fungi assessment analytical data with supporting and background information appear in the enclosed table.

As presented in Table 21010001-10, the airborne spore count data recorded on that date showed mostly fungal spore types outdoors such as *Alternaria*, ascospores, basidiospores, *Chaetomium*, *Cladosporium*, colorless spores typical of *Penicillium* and *Aspergillus* species, *Nigrospora*, other brown, rusts, and smuts, with basidiospores predominating. In the Day Care areas tested, the data showed low airborne concentrations of common fungal spores that included one or more of the following: basidiospores, *Bipolaris/Drechslera* group, *Cladosporium*, colorless spores typical of *Penicillium* and *Aspergillus* species, rusts, and/or smuts. The distribution of fungal spore types detected in the surveyed areas was consistent with those found outdoors, and the overall data within the tested areas were well below the overall datum recorded outdoors. These data are considered unremarkable and are not believed to pose a health risk beyond that posed by the outdoor environment where exposures to airborne fungi are expected.

Mr. David Gau  
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Be advised that the data provided in this report only represent limited fungal growth exposure potentials that existed at the time the survey was performed and at the precise sample locations indicated, the latter of which were selected based on the available background information provided. Note that fungal growth and exposure potentials may change due to changes in environmental conditions (such as those caused by water intrusion), use of mechanical systems, or other factors. Also be advised that additional fungal growth may exist at one or more locations in the structure that were not specifically assessed during the survey.

If you have any comments or questions regarding the information contained in this correspondence, please feel free to contact our offices directly at (310) 370-8370.

Sincerely,

**HYGIENE TECHNOLOGIES INTERNATIONAL, INC.**

A handwritten signature in black ink, appearing to read 'Kenny K. Hsi', is written over a horizontal line.

Kenny K. Hsi, CIH  
Technical Director

# HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

# APPENDIX A



CLIENT: State of California  
Board of Equalization  
450 N Street  
Sacramento, California 94279

TABLE 21010001-10  
AIRBORNE TOTAL FUNGI RESULTS  
1<sup>ST</sup> FLOOR DAY CARE  
SACRAMENTO, CALIFORNIA  
OCTOBER 8, 2010

## Results reported in spores per cubic meter of air (spores/M<sup>3</sup>)

SAMPLE NUMBER	21010001-10 TM01WF	21010001-10 TM02OUTWF	21010001-10 TM03WF	21010001-10 TM04WF
<b>SAMPLING LOCATION/ACTIVITIES</b>	Day Care; Preschool Room; about center; approximately five feet above floor/Sampling activities only	Outdoors; about 15 feet west of building; approximately five feet above ground/Normal outdoor activities	Day care; Preschool Room; about center approximately five feet above floor/ Investigation activities in progress	Day Care; Preschool Room; about center approximately five feet above floor/ Investigation activities in progress
<b>START/STOP</b>	19:01:00/19:06:00	19:10:00/19:15:00	19:18:00/19:23:00	19:29:00/19:34:00
<b>SAMPLE TIME</b>	5 minutes	5 minutes	5 minutes	5 minutes
Alternaria		13		
Arthrinium				
Ascospores		53		
Aureobasidium				
Basidiospores	110	1,100	53	53
Bipolaris/Drechslera group			13	
Botrytis				
Chaetomium		53		
Cladosporium		1,000		53
Curvularia				
Epicoccum				
Nigrospora		53		
Oidium				
Other brown		27		
Other colorless				
Penicillium/Aspergillus types	53	850		
Pithomyces				
Rusts	13	27	53	27
Smuts (Periconia, Myxomycetes)		110	27	13
Stachybotrys				
Torula				
Ulocladium				
Hyphal fragments	13	170	<13	27
Background Particulate*	2+	4+	3+	3+
<b>TOTAL**</b>	170	3,300	150	150

\*Background debris is an indication of the amount of non-biological particulate matter present on the slide and is graded (from least to greatest) as 1+ to 4+.

\*\*Note that all reported counts have been rounded to no more than two significant figures based on the sampling and analytical methods used, and therefore the total count may not equal the sum of the individual counts in a column.



Report for:

**Mr. Wesley Frey, Mr. Larry Sandhu**  
**Hygiene Technologies International, Inc.: Northern California**  
3625 Del Amo Boulevard, Suite 180  
Torrance, CA 90503-8370

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Regarding: Project: 21010001-10  
EML ID: 712766

Approved by:

Lab Manager  
Malcolm Moody

Dates of Analysis:

Spore trap analysis: 10-09-2010

Service SOPs: Spore trap analysis (1038)

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For clarity, we report the number of significant digits as calculated; but, due to the nature of this type of biological data, the number of significant digits that is used for interpretation should generally be one or two. All samples were received in acceptable condition unless noted in the Report Comments portion in the body of the report. Due to the nature of the analyses performed, field blank corrections of results is not a standard practice. The results relate only to the items tested.

EMLab P&K ("the Company") shall have no liability to the client or the client's customer with respect to decisions or recommendations made, actions taken or courses of conduct implemented by either the client or the client's customer as a result of or based upon the Test Results. In no event shall the Company be liable to the client with respect to the Test Results except for the Company's own willful misconduct or gross negligence nor shall the Company be liable for incidental or consequential damages or lost profits or revenues to the fullest extent such liability may be disclaimed by law, even if the Company has been advised of the possibility of such damages, lost profits or lost revenues. In no event shall the Company's liability with respect to the Test Results exceed the amount paid to the Company by the client therefor.

Document Number: 200091 - Revision Number: 5

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Client: Hygiene Technologies International, Inc.:  
Northern California  
C/O: Mr. Wesley Frey, Mr. Larry Sandhu  
Re: 21010001-10

Date of Sampling: 10-08-2010  
Date of Receipt: 10-09-2010  
Date of Report: 10-09-2010

**SPORE TRAP REPORT: NON-VIABLE METHODOLOGY**

Location:	21010001-10TM01WF		21010001-10TM02OUTWF		21010001-10TM03WF		21010001-10TM04WF	
Comments (see below)	None		None		None		None	
Lab ID-Version‡:	3158595-1		3158596-1		3158597-1		3158598-1	
	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3	raw ct.	spores/m3
Alternaria			1	13				
Arthrinium								
Ascospores*			1	53				
Aureobasidium								
Basidiospores*	2	110	21	1,100	1	53	1	53
Bipolaris/Drechslera group					1	13		
Botrytis								
Chaetomium			4	53				
Cladosporium			19	1,000			1	53
Curvularia								
Epicoccum								
Fusarium								
Nigrospora			4	53				
Other brown			2	27				
Penicillium/Aspergillus types†	1	53	16	850				
Pithomyces								
Rusts*	1	13	2	27	4	53	2	27
Smuts*, Periconia, Myxomycetes*			8	110	2	27	1	13
Stachybotrys								
Stemphylium								
Torula								
Ulocladium								
Background debris (1-4+)††	2+		4+		3+		3+	
Hyphal fragments/m3	13		170		< 13		27	
Pollen/m3	13		93		27		< 13	
Skin cells (1-4+)	1+		< 1+		1+		1+	
Sample volume (liters)	75		75		75		75	
<b>§ TOTAL SPORES/m3</b>		<b>170</b>		<b>3,300</b>		<b>150</b>		<b>150</b>

**Comments:**

Spore types listed without a count or data entry were not detected during the course of the analysis for the respective sample.  
 \* Most of these spore types are not seen with culturable methods (Andersen sampling), although some may appear as non-sporulating fungi. Most of the basidiospores are "mushroom" spores while the rusts and smuts are plant pathogens.  
 † The spores of *Aspergillus* and *Penicillium* (and others such as *Acremonium*, *Paecilomyces*) are small and round with very few distinguishing characteristics. They cannot be differentiated by non-viable sampling methods. Also, some species with very small spores are easily missed, and may be undercounted.  
 †† Background debris indicates the amount of non-biological particulate matter present on the trace (dust in the air) and the resulting visibility for the analyst. It is rated from 1+ (low) to 4+ (high). Counts from areas with 4+ background debris should be regarded as minimal counts and may be higher than reported. It is important to account for samples volumes when evaluating dust levels.  
 The Limit of Detection is the product of a raw count of 1 and 100 divided by the percent read. The analytical sensitivity (counts/m3) is the product of the Limit of Detection and 1000 divided by the sample volume.  
 ‡ A "Version" indicated by "-x" after the Lab ID# with a value greater than 1 indicates a sample with amended data. The revision number is reflected by the value of "x".  
 § Total Spores/m3 has been rounded to two significant figures to reflect analytical precision.

