



ENGINEERING &
ENVIRONMENTAL
SERVICES

ACM ENGINEERING & ENVIRONMENTAL SERVICES

SOUTH BEND, INDIANA • FORT WAYNE, INDIANA • ELMHURST, ILLINOIS
TAMPA, FLORIDA • FORT LAUDERDALE, FLORIDA

INDOOR AIR QUALITY ASSESSMENT REPORT

FOR:

**VIGO COUNTY SCHOOL CORPORATION
P.O. BOX 3703
TERRE HAUTE, INDIANA 47803**

LOCATION:

**THE LEARNING LAB
55 SOUTH BROWN AVENUE
TERRE HAUTE, INDIANA 47803**

PERFORMED BY:

**ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, INDIANA 46628**

DATE:

NOVEMBER 13, 2023



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CLIENT:

**VIGO COUNTY SCHOOL CORPORATION
P.O. BOX 3703
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LOCATION:

**THE LEARNING LAB
55 SOUTH BROWN AVENUE
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TABLE OF CONTENTS

<u>SECTION</u>	<u>CONTENT</u>
<i>I</i>	<i>EXECUTIVE SUMMARY</i>
<i>II</i>	<i>OPTICAL MOLD AIR SAMPLING ANALYSIS</i>
<i>III</i>	<i>IAQ-CALC MONITORING DATA ANALYSIS</i>
<i>IV</i>	<i>FORMALDEHYDE AIR SAMPLING ANALYSIS</i>
<i>V</i>	<i>NUISANCE PARTICULATE MATTER AIR SAMPLING ANALYSIS</i>
<i>VI</i>	<i>VOLATILE ORGANIC COMPOUND (VOC) AIR SAMPLING ANALYSIS</i>
<i>VII</i>	<i>RECOMMENDATIONS</i>
<i>VIII</i>	<i>GLOSSARY OF TERMS</i>
<i>IX</i>	<i>CLOSING STATEMENT</i>



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INDOOR AIR QUALITY ASSESSMENT REPORT

FOR:

**VIGO COUNTY SCHOOL CORPORATION
P.O. BOX 3703
TERRE HAUTE, INDIANA 47803**

DATE: NOVEMBER 13, 2023
SITE: THE LEARNING LAB
ADDRESS: 55 SOUTH BROWN AVENUE
TERRE HAUTE, INDIANA 47803

PROJECT REVIEW:

ACM Engineering & Environmental Services (ACM) performed an Indoor Air Quality Assessment on October 4, 2023 for Vigo County School Corporation within The Learning Lab located at 55 South Brown Avenue in Terre Haute, Indiana.

Vigo County School Corporation (the client) retained ACM to perform an Indoor Air Quality (IAQ) Assessment as a fact-finding investigation to obtain the baseline status of the indoor air quality within representative locations of The Learning Lab relative to airborne concentrations of mold spores, formaldehyde, volatile organic compounds, nuisance particulate matter, carbon dioxide, and carbon monoxide in addition to temperature and relative humidity.

The project involved a site assessment to perform the following procedures:

- Visually assess the existing physical and environmental conditions within the assessed areas of The Learning Lab.
- Collect six (6) optical air samples to be analyzed for the identification and quantification of mold spores within the assessed areas of The Learning Lab. An air sample was also collected of the outdoor air for comparison purposes.
- Perform monitoring at five (5) minute intervals over an approximate seven (7) hour time period of the ambient relative humidity and air temperatures within the assessed areas of The Learning Lab utilizing two (2) TSI IAQ-Calc Indoor Air Quality Meters Model Number 7545 to determine if these environmental conditions were within the recommended indoor thermal environmental conditions established by the American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) Standard 55-2020. The TSI IAQ-Calc Indoor Air Quality Meters were stationed in four (4) assessed locations for a time period ranging from two and a half (2.5) hours to four and a half (4.5) hours per area.



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- Perform monitoring at five (5) minute intervals over an approximate seven (7) hour time period of the carbon dioxide and carbon monoxide levels within the assessed areas of The Learning Lab utilizing two (2) TSI IAQ-Calc Indoor Air Quality Meters Model Number 7545 to determine if carbon dioxide and carbon monoxide levels exceed the established Occupational Safety and Health Administration (OSHA) Permissible Exposure Limit (PEL) or the National Institute for Occupational Safety and Health (NIOSH) Recommended Exposure Limit (REL) for indoor levels of carbon dioxide and carbon monoxide. The TSI IAQ-Calc Indoor Air Quality Meters were stationed in four (4) assessed locations for a time period ranging from two and a half (2.5) hours to four and a half (4.5) hours per area.
- Collect two (2) air samples to be analyzed utilizing High Performance Liquid Chromatography techniques for the quantification of formaldehyde gas concentrations within the assessed areas of The Learning Lab.
- Collect two (2) air samples to be analyzed using gravimetric filter weight methods for the quantification of airborne nuisance particulate matter (nuisance dust) concentrations within the assessed areas of The Learning Lab.
- Collect two (2) air samples to be analyzed utilizing Gas Chromatography techniques for the quantification of airborne volatile organic compound (VOC) concentrations within the assessed areas of The Learning Lab.

Mold Sampling Laboratory Analysis

ACM microscopists used optical methods to analyze the air samples for mold spore identification and quantification. ACM microscopists have all completed the intensive five-day Fungal Spore Identification Course at McCrone Research Institute in Chicago, Illinois. The ACM laboratory in South Bend, Indiana (Laboratory ID 102187) is accredited by the American Industrial Hygiene Association Laboratory Accreditation Programs (AIHA LAP), LLC in the Environmental Microbiology Laboratory Accreditation Program (EMLAP) for Fungal Air - Direct Examination, Fungal Bulk - Direct Examination, and Fungal Surface - Direct Examination Fields of Testing as documented by the Scope of Accreditation Certificates.

TSI IAQ-Calc Indoor Air Quality Meter Data Analysis

The data collected from the continual monitoring of ambient air temperature, relative humidity, carbon dioxide, and carbon monoxide within the assessed areas was analyzed by ACM to determine if these indoor air quality environmental conditions were within established industry standards and/or regulated limits utilizing TSI IAQ-Calc Indoor Air Quality Meters Model Number 7545.



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Formaldehyde Air Sampling Laboratory Analysis

The Wisconsin Occupational Health Laboratory (WOHL) used High Performance Liquid Chromatography methods to analyze the air samples for formaldehyde quantification. The WOHL is accredited by the AIHA to perform formaldehyde gas quantification analysis utilizing High Performance Liquid Chromatography methods.

Nuisance Particulate Matter Air Sampling Laboratory Analysis

The WOHL used gravimetric filter weight methods to analyze the air samples for nuisance particulate matter quantification. The WOHL is accredited by the AIHA to perform nuisance particulate matter quantification analysis utilizing gravimetric filter weight methods.

Volatile Organic Compound Air Sampling Laboratory Analysis

The WOHL used Gas Chromatography methods to analyze the air samples for VOC quantification. The WOHL is accredited by the AIHA to perform VOC quantification analysis utilizing Gas Chromatography methods.



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IAQ ASSESSMENT REPORT

SECTION I:

EXECUTIVE SUMMARY

FOR:

**VIGO COUNTY SCHOOL CORPORATION
P.O. BOX 3703
TERRE HAUTE, INDIANA 47803**

LOCATION:

**THE LEARNING LAB
55 SOUTH BROWN AVENUE
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SECTION I: EXECUTIVE SUMMARY

Visual Assessment

A limited visual assessment was performed to identify suspect fungal growth and any other pertinent findings relating to the established assessment protocol. No visible suspect mold growth was observed during the assessment.

Mold Air Sample Analysis

The laboratory results generated from the mold air samples collected during the investigation contained non-elevated airborne mold spore concentrations in all six (6) sampled indoor locations. The non-elevated air sampling results indicate that mold growth is not present or occurring in those sampled locations.

IAQ-Calc Monitoring Analysis

- Relative Humidity Monitoring

The ambient relative humidity readings within the assessed areas of the school were identified as being within and exceeding the recommended indoor thermal environmental conditions of a minimum of 30.0% and maximum of 60.0% relative humidity as established by the ASHRAE Standard 55-2020 during the monitoring periods.

- Air Temperature Monitoring

The ambient air temperature readings within the assessed areas of the school were identified as being below the recommended indoor thermal environmental conditions as established by the ASHRAE Standard 55-2020 for summer of 73.0°F to 79.0°F during the monitoring periods.

- Carbon Dioxide Monitoring

The levels of carbon dioxide that the IAQ-Calc monitoring equipment detected during the assessment periods within the assessed areas of the school did not exceed the OSHA PEL or the NIOSH REL for carbon dioxide exposure. The levels of carbon dioxide did exceed the concentration level of 1,000 parts per million (ppm) during the monitoring period in one (1) of the four (4) assessed locations, which is the threshold for physical discomfort.

- Carbon Monoxide Monitoring

The levels of carbon monoxide that the IAQ-Calc monitoring equipment detected during the assessment periods within the assessed areas of the school did not exceed the OSHA PEL or the NIOSH REL for carbon monoxide exposure. The concentrations of carbon monoxide contained within the results of the monitoring periods during the assessment may be considered to be present in low levels.



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Airborne Formaldehyde Gas Sample Analysis

The laboratory results generated from the formaldehyde gas air samples collected within the school did not exceed the OSHA eight hour time weighted average (TWA) PEL, OSHA eight hour time TWA action level (AL), NIOSH REL, or American Conference of Governmental Industrial Hygienists (ACGIH) ceiling threshold limit value (TLV). The concentrations of formaldehyde gas collected during the assessment may be considered to be present in low levels.

Airborne Nuisance Particulate Matter Sample Analysis

The laboratory results generated from the nuisance particulate matter air samples did not exceed the OSHA eight hour TWA PEL or ACGIH TLV TWA. The concentrations of airborne nuisance particulate matter identified within the results of the samples collected during the assessment may be considered to be present in low levels.

Airborne Volatile Organic Compound (VOC) Sample Analysis

The laboratory results generated from the VOC air samples collected within the structure did not exceed any OSHA PEL, NIOSH REL or ACGIH TLV. The results of the air sampling indicate that the concentrations of VOCs present within the sampled locations of the school may be considered to be present in low levels.



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IAQ ASSESSMENT REPORT

SECTION II:

OPTICAL MOLD SAMPLING ANALYSIS

FOR:

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TERRE HAUTE, INDIANA 47803**

LOCATION:

**THE LEARNING LAB
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SECTION II: OPTICAL MOLD AIR SAMPLING ANALYSIS

Air samples collected for optical analysis for the identification and quantification of airborne mold spores were sampled using Zefon Air-O-Cell® spore trap cassettes. A volume of one hundred fifty (150) liters of air at a rate of fifteen (15) liters per minute for each of the air samples was collected. The air sampling pump utilized for collecting these air samples was calibrated at fifteen (15) liters per minute prior to its usage and was operated for ten (10) minutes per sample. The samples were collected at a height of three to six (3 – 6) feet from the floor. Each sample is assigned an identification number, which is then recorded on a chain-of-custody form. Optical analysis of air samples provides presumptive viable and non-viable airborne mold spore identification and quantification. Optical mold air sample results are represented as fungal structures per cubic meter (fungal structures/m³).

Indoor mold growth is generally indicated when the concentrations of airborne mold spores per cubic meter are greater in the results of the air samples collected in an indoor occupied area in comparison to the concentrations of airborne mold spores per cubic meter contained in the results of an outdoor comparison air sample. Airborne mold spores at the spore genus level in concentrations that are at four hundred (400) or less fungal structures per cubic meter are generally considered to be present in low levels. Indoor airborne mold spore concentrations that exceed the outdoor airborne mold spore concentrations at or within four hundred fungal structures per cubic meter are generally considered to be present in a similar level to the outside air as opposed to elevated.

A total of seven (7) air samples were collected during the assessment conducted within the school. Laboratory results of the air samples collected within the school were compared to the laboratory results of the comparison air sample collected of the outdoor air. The locations of the mold air samples collected on October 4, 2023 are as follows:

- *Outside (TLL-M01)*
- *Media Center/BizTown (TLL-M02)*
- *Room 208/209 (TLL-M03)*
- *Main Office – Central Location (TLL-M04)*
- *Room 110 (TLL-M05)*
- *Room 216 (TLL-M06)*
- *Gym – Central Location (TLL-M07)*

The air sample results indicate that the concentrations of airborne mold spores per cubic meter identified in the air samples collected within each of the sampled locations were not elevated relative to the mold spore concentrations contained in the outdoor comparison sample. The non-elevated air sampling results indicate that an amplification of mold growth is not present or occurring in these sampled locations.

The following pages contain the Analysis of Optical Spore Identification sheets and the Chain-of-Custody form for the airborne mold spore sampling that was performed.

**REPORT OF INERTIAL IMPACTOR AIR SAMPLE (SPORE TRAP) ANALYSIS**

CLIENT: Vigo County School Corporation
P.O. Box 3703
Terre Haute, Indiana 47803

ACM PROJECT #: 10140
REFERENCE #: N/A
SAMPLED BY: EAD

LOCATION: The Learning Lab
55 South Brown Avenue
Terre Haute, Indiana 47803

SAMPLE DATE: 10/4/23
RECEIVED DATE: 10/18/23
ANALYSIS DATE: 10/18/23
REPORT DATE: 10/23/23

SAMPLE ID	PRESUMPTIVE FUNGAL ID	RAW COUNT	(COUNT/m ³)
TLL-M01	<i>Acremonium</i> -like		
	<i>Alternaria</i>	37	990
	<i>Arthrimum</i>		
SAMPLE LOCATION Outside	Ascospores, Non-Specified	10	270
	<i>Aspergillus/Penicillium</i> -like	5	100
	Basidiospores, Non-Specified	157	4200
	<i>Bipol./Drechs./Helm./Exserohilum</i>		
	<i>Botrytis</i>		
	<i>Cercospora</i> -like	17	450
	<i>Chaetomium</i>		
	<i>Cladosporium</i>	600	16000
	<i>Curvularia</i>	3	80
	<i>Epicoccum</i>	9	200
	<i>Fusarium</i>	3	80
	<i>Ganoderma</i>	4	100
	Hyphal Fragments	15	400
	<i>Memnoniella</i>		
	<i>Myxomycetes/Periconia/Rust/Smut</i>	21	560
AIR VOLUME (L) 150	<i>Nigrospora</i>	6	200
	<i>Oidium</i> -like		
	<i>Pestalotiopsis/Pestalotia</i>		
ANALYSIS METHOD ACM TM-001	<i>Pithomyces</i> -like	5	100
	<i>Polythrincium</i>		
	<i>Scopulariopsis</i> -like		
	<i>Spegazzinia</i>		
% TRACE ANALYZED 25	<i>Stachybotrys</i>		
	<i>Stemphylium</i>		
	<i>Tetraploa</i>		
MAGNIFICATION 1000x	<i>Torula</i>	1	30
	<i>Trichoderma</i> -like		
	<i>Ulocladium</i>		
	<i>Zygothia</i>		
	Non-Specified Spore		
TOTALS		893	24000

COMMENTS:

Reporting Limit-30 Fungal Structures per Cubic Meter.

NOTE: The results listed above relate only to the sample tested as received. These samples were considered to be in acceptable condition for analysis. Sample air volume is presumed 150L unless otherwise stipulated by the customer. Information provided by the customer, or lack thereof, can affect the validity of results. Due to rounding for significant figures; the total fungal structure count/m³ may vary slightly from the value obtained through summation of each fungal structure category observed within a sample.

ANALYZED BY: *Larry Malone* NAME & TITLE: Larry Malone, Laboratory Director DATE: 10/23/23
REVIEWED BY: *Erin Dempsey* NAME & TITLE: Erin Dempsey, Quality Manager DATE: 10/23/23

**REPORT OF INERTIAL IMPACTOR AIR SAMPLE (SPORE TRAP) ANALYSIS**

CLIENT: Vigo County School Corporation
P.O. Box 3703
Terre Haute, Indiana 47803

ACM PROJECT #: 10140
REFERENCE #: N/A
SAMPLED BY: EAD

LOCATION: The Learning Lab
55 South Brown Avenue
Terre Haute, Indiana 47803

SAMPLE DATE: 10/4/23
RECEIVED DATE: 10/18/23
ANALYSIS DATE: 10/18/23
REPORT DATE: 10/23/23

SAMPLE ID	PRESUMPTIVE FUNGAL ID	RAW COUNT	(COUNT/m ³)
TLL-M02	<i>Acremonium</i> -like <i>Alternaria</i> <i>Arthrimum</i>		
SAMPLE LOCATION	Ascospores, Non-Specified		
Media Center/Biz Town	<i>Aspergillus/Penicillium</i> -like Basidiospores, Non-Specified <i>Bipol./Drechs./Helm./Exserohilum</i> <i>Botrytis</i> <i>Cercospora</i> -like <i>Chaetomium</i> <i>Cladosporium</i> <i>Curvularia</i> <i>Epicoccum</i> <i>Fusarium</i> <i>Ganoderma</i> Hyphal Fragments <i>Memnoniella</i> <i>Myxomycetes/Periconia/Rust/Smut</i>	1	30
AIR VOLUME (L)	<i>Nigrospora</i>		
150	<i>Oidium</i> -like <i>Pestalotiopsis/Pestalotia</i> <i>Pithomyces</i> -like	2	50
ANALYSIS METHOD	<i>Polythrincium</i>		
ACM TM-001	<i>Scopulariopsis</i> -like <i>Spegazzinia</i> <i>Stachybotrys</i>		
% TRACE ANALYZED	<i>Stemphylium</i>		
25	<i>Tetraploa</i> <i>Torula</i> <i>Trichoderma</i> -like		
MAGNIFICATION	<i>Ulocladium</i>		
1000x	<i>Zygothiala</i> Non-Specified Spore		
TOTALS		3	80
COMMENTS:		Reporting Limit-30 Fungal Structures per Cubic Meter.	
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ANALYZED BY: Larry Malone NAME & TITLE: Larry Malone, Laboratory Director DATE: 10/23/23

REVIEWED BY: Erin Dempsey NAME & TITLE: Erin Dempsey, Quality Manager DATE: 10/23/23

**REPORT OF INERTIAL IMPACTOR AIR SAMPLE (SPORE TRAP) ANALYSIS**

CLIENT: Vigo County School Corporation
P.O. Box 3703
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ACM PROJECT #: 10140
REFERENCE #: N/A
SAMPLED BY: EAD

LOCATION: The Learning Lab
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SAMPLE DATE: 10/4/23
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ANALYSIS DATE: 10/18/23
REPORT DATE: 10/23/23

SAMPLE ID	PRESUMPTIVE FUNGAL ID	RAW COUNT	(COUNT/m ³)
TLL-M03	<i>Acremonium</i> -like <i>Alternaria</i> <i>Arthrinium</i>		
SAMPLE LOCATION	Ascospores, Non-Specified		
Room 208/209	<i>Aspergillus/Penicillium</i> -like Basidiospores, Non-Specified <i>Bipol./Drechs./Helm./Exserohilum</i> <i>Botrytis</i> <i>Cercospora</i> -like <i>Chaetomium</i> <i>Cladosporium</i> <i>Curvularia</i> <i>Epicoccum</i> <i>Fusarium</i> <i>Ganoderma</i> Hyphal Fragments <i>Memnoniella</i> <i>Myxomycetes/Periconia/Rust/Smut</i>	1	30
AIR VOLUME (L)	<i>Nigrospora</i>		
150	<i>Oidium</i> -like <i>Pestalotiopsis/Pestalotia</i> <i>Pithomyces</i> -like		
ANALYSIS METHOD	<i>Polythrincium</i>		
ACM TM-001	<i>Scopulariopsis</i> -like <i>Spegazzinia</i> <i>Stachybotrys</i>		
% TRACE ANALYZED	<i>Stemphylium</i>		
25	<i>Tetraploa</i> <i>Torula</i> <i>Trichoderma</i> -like		
MAGNIFICATION	<i>Ulocladium</i>		
1000x	<i>Zygophiala</i> Non-Specified Spore		
TOTALS		1	30

COMMENTS:**Reporting Limit-30 Fungal Structures per Cubic Meter.**

NOTE: The results listed above relate only to the sample tested as received. These samples were considered to be in acceptable condition for analysis. Sample air volume is presumed 150L unless otherwise stipulated by the customer. Information provided by the customer, or lack thereof, can affect the validity of results. Due to rounding for significant figures; the total fungal structure count/m³ may vary slightly from the value obtained through summation of each fungal structure category observed within a sample.

ANALYZED BY:

NAME & TITLE: Larry Malone, Laboratory Director

DATE: 10/23/23

REVIEWED BY:

NAME & TITLE: Erin Dempsey, Quality Manager

DATE: 10/23/23



REPORT OF INERTIAL IMPACTOR AIR SAMPLE (SPORE TRAP) ANALYSIS

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LOCATION: The Learning Lab
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SAMPLE DATE: 10/4/23
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Table with 4 columns: SAMPLE ID, PRESUMPTIVE FUNGAL ID, RAW COUNT, (COUNT/m³). Rows include sample details, fungal species lists, air volume (150L), analysis method (ACM TM-001), % trace analyzed (25%), magnification (1000x), and a totals row showing 4 raw counts and 100 counts/m³.

COMMENTS:

Reporting Limit-30 Fungal Structures per Cubic Meter.

NOTE: The results listed above relate only to the sample tested as received. These samples were considered to be in acceptable condition for analysis. Sample air volume is presumed 150L unless otherwise stipulated by the customer. Information provided by the customer, or lack thereof, can affect the validity of results. Due to rounding for significant figures; the total fungal structure count/m³ may vary slightly from the value obtained through summation of each fungal structure category observed within a sample.

ANALYZED BY: Larry Malone NAME & TITLE: Larry Malone, Laboratory Director DATE: 10/23/23

REVIEWED BY: Erin Dempsey NAME & TITLE: Erin Dempsey, Quality Manager DATE: 10/23/23

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SAMPLE ID	PRESUMPTIVE FUNGAL ID	RAW COUNT	(COUNT/m ³)
TLL-M05	<i>Acremonium</i> -like		
	<i>Alternaria</i>		
	<i>Arthrinium</i>		
SAMPLE LOCATION	Ascospores, Non-Specified	1	30
Room 110	<i>Aspergillus/Penicillium</i> -like		
	Basidiospores, Non-Specified	1	30
	<i>Bipol./Drechs./Helm./Exserohilum</i>		
	<i>Botrytis</i>		
	<i>Cercospora</i> -like		
	<i>Chaetomium</i>		
	<i>Cladosporium</i>	2	50
	<i>Curvularia</i>		
	<i>Epicoccum</i>		
	<i>Fusarium</i>		
	<i>Ganoderma</i>		
	Hyphal Fragments		
	<i>Memnoniella</i>		
	<i>Myxomycetes/Periconia/Rust/Smut</i>		
AIR VOLUME (L)	<i>Nigrospora</i>		
150	<i>Oidium</i> -like		
	<i>Pestalotiopsis/Pestalotia</i>		
	<i>Pithomyces</i> -like		
ANALYSIS METHOD	<i>Polythrincium</i>		
ACM TM-001	<i>Scopulariopsis</i> -like		
	<i>Spegazzinia</i>		
	<i>Stachybotrys</i>		
% TRACE ANALYZED	<i>Stemphylium</i>		
25	<i>Tetraploa</i>		
	<i>Torula</i>		
	<i>Trichoderma</i> -like		
MAGNIFICATION	<i>Ulocladium</i>		
1000x	<i>Zygothia</i>		
	Non-Specified Spore		
TOTALS		4	100
COMMENTS:		Reporting Limit-30 Fungal Structures per Cubic Meter.	
NOTE: The results listed above relate only to the sample tested as received. These samples were considered to be in acceptable condition for analysis. Sample air volume is presumed 150L unless otherwise stipulated by the customer. Information provided by the customer, or lack thereof, can affect the validity of results. Due to rounding for significant figures; the total fungal structure count/m ³ may vary slightly from the value obtained through summation of each fungal structure category observed within a sample.			

ANALYZED BY: *Larry Malone* NAME & TITLE: Larry Malone, Laboratory Director DATE: 10/23/23

REVIEWED BY: *Erin Dempsey* NAME & TITLE: Erin Dempsey, Quality Manager DATE: 10/23/23



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ACM PROJECT #: 10140
REFERENCE #: N/A
SAMPLED BY: EAD

LOCATION: The Learning Lab
55 South Brown Avenue
Terre Haute, Indiana 47803

SAMPLE DATE: 10/4/23
RECEIVED DATE: 10/18/23
ANALYSIS DATE: 10/18/23
REPORT DATE: 10/23/23

Table with 4 columns: SAMPLE ID, PRESUMPTIVE FUNGAL ID, RAW COUNT, (COUNT/m³). Rows include sample details, fungal species list (e.g., Acremonium-like, Alternaria, Aspergillus/Penicillium-like), and a TOTALS row showing 9 raw counts and 200 count/m³.

COMMENTS: Reporting Limit-30 Fungal Structures per Cubic Meter.

NOTE: The results listed above relate only to the sample tested as received. These samples were considered to be in acceptable condition for analysis. Sample air volume is presumed 150L unless otherwise stipulated by the customer. Information provided by the customer, or lack thereof, can affect the validity of results. Due to rounding for significant figures; the total fungal structure count/m³ may vary slightly from the value obtained through summation of each fungal structure category observed within a sample.

ANALYZED BY: [Signature] NAME & TITLE: Larry Malone, Laboratory Director DATE: 10/23/23
REVIEWED BY: [Signature] NAME & TITLE: Erin Dempsey, Quality Manager DATE: 10/23/23

**REPORT OF INERTIAL IMPACTOR AIR SAMPLE (SPORE TRAP) ANALYSIS**

CLIENT: Vigo County School Corporation
P.O. Box 3703
Terre Haute, Indiana 47803

ACM PROJECT #: 10140
REFERENCE #: N/A
SAMPLED BY: EAD

LOCATION: The Learning Lab
55 South Brown Avenue
Terre Haute, Indiana 47803

SAMPLE DATE: 10/4/23
RECEIVED DATE: 10/18/23
ANALYSIS DATE: 10/18/23
REPORT DATE: 10/23/23

SAMPLE ID	PRESUMPTIVE FUNGAL ID	RAW COUNT	(COUNT/m ³)
TLL-M07	<i>Acremonium</i> -like <i>Alternaria</i> <i>Arthrimum</i>		
SAMPLE LOCATION	Ascospores, Non-Specified		
Gym - Central Location	<i>Aspergillus/Penicillium</i> -like Basidiospores, Non-Specified <i>Bipol./Drechs./Helm./Exserohilum</i> <i>Botrytis</i> <i>Cercospora</i> -like <i>Chaetomium</i> <i>Cladosporium</i> <i>Curvularia</i> <i>Epicoccum</i> <i>Fusarium</i> <i>Ganoderma</i> Hyphal Fragments <i>Memnoniella</i> <i>Myxomycetes/Periconia/Rust/Smut</i>		
AIR VOLUME (L)	<i>Nigrospora</i>		
150	<i>Oidium</i> -like <i>Pestalotiopsis/Pestalotia</i> <i>Pithomyces</i> -like		
ANALYSIS METHOD	<i>Polythrincium</i>		
ACM TM-001	<i>Scopulariopsis</i> -like <i>Spegazzinia</i> <i>Stachybotrys</i>		
% TRACE ANALYZED	<i>Stemphylium</i>		
25	<i>Tetraploa</i> <i>Torula</i> <i>Trichoderma</i> -like		
MAGNIFICATION	<i>Ulocladium</i>		
1000x	<i>Zygophiala</i> Non-Specified Spore		
TOTALS		See Comment Below	
COMMENTS: No Fungal Structures were Detected in this Sample.			
NOTE: The results listed above relate only to the sample tested as received. These samples were considered to be in acceptable condition for analysis. Sample air volume is presumed 150L unless otherwise stipulated by the customer. Information provided by the customer, or lack thereof, can affect the validity of results. Due to rounding for significant figures; the total fungal structure count/m ³ may vary slightly from the value obtained through summation of each fungal structure category observed within a sample.			

ANALYZED BY: *Larry Malone*

NAME & TITLE: Larry Malone, Laboratory Director

DATE: 10/23/23

REVIEWED BY: *Erin Dempsey*

NAME & TITLE: Erin Dempsey, Quality Manager

DATE: 10/23/23

ACM Engineering Environmental Services, Inc.
MOLD DESCRIPTIONS

Acremonium	Common soil fungus that occurs indoors in wet environments on a variety of substrates. Commonly grows on dead plant materials. Grows well on cellulose surfaces. Does not require significant amounts of water. Alternaria can be found growing indoors on surfaces like wallpaper.
Arthrinium	Commonly grows on dead plant materials and in soil. It grows under the same conditions as Stachybotrys (high moisture). Rarely found growing indoors.
Aspergillus/Penicillium	One of the most commonly found molds; it can be found in soils, cellulose materials, carpet, wallpaper, wallpaper glue, decaying fabric, and fiberglass duct insulation. Commonly found in house dust, and water damaged buildings.
Ascospores	Spores produced by sexual reproduction by many fungi. Fungi reproduce asexually by a process known as mitosis. Many Ascospores are known to be plant pathogens.
Basidiospores	Spores that are characterized by some sort of attachment peg that anchors the spore to the reproductive structure known as the basidium. Some basidiospores may have an apical pore present. These spores may be oval, oblong, ellipsoid or cylindrical; spores usually are without septations (septa). Indoors basidiospores are found growing on water damaged building materials, chipboard, OSB, plywood, wallpaper, glue.
Bipol/Drech/Exosp/Helm	Plant pathogens many may be pathogenic to grasses. Can be found indoors on a variety of materials.
Botrytis	A fungus, which infects a wide variety of herbaceous annual and perennial plants. Also known as gray rot. Grows in dead or dying plant material.
Chaetomium	Metabolizes cellulose directly as a nutrient source. Is found growing indoors on wet gypsum board and other indoor surfaces. Produces large dark ovoid spores.
Cladosporium	The most common fungal spore found outdoors. Usually found outdoors in greater numbers than indoors. Found indoors on window sills bathroom tile grout, sheetrock, and subfloors. In areas where moisture is above 50%.
Curvularia	Plant pathogen (saprophyte) often found growing outside in the soil and decaying plants. Rarely found indoors.
Epicoccum	Grows rapidly on cellulose surfaces; is found indoors on a variety of textiles and paper. Outdoors can be found in decaying plant material. Concentrations can be high in agricultural areas.
Fusarium	Commonly found in soil on dead and living plants. Grows rapidly. Indoors often found in bathroom or other areas with high moisture.
Nigrospora	Common in warmer climates; Often found growing outdoors in soil and decaying plant material. Rarely found indoors. Spores are characteristically large black and round.
Myxo/Periconia/Rust/Smut	Plant pathogen (saprophyte) found growing on living plants. Rarely found indoors may be found on indoor plants.
Pithomyces	Grows outdoors in decaying leaves and grasses. Indoors grows rapidly on cellulose materials especially paper.
Scopulariopsis	Found outdoors in the soil and decaying plant material. Scopulariopsis has a moderately fast growth rate. It can be found growing indoors on carpets and wallpaper.
Stachybotrys	Commonly found outdoors in soil and decaying plant material. <i>Arthrinium</i> grows under the same conditions as <i>Stachybotrys</i> and the two molds can be found growing together. Indoors rapidly attacks cellulose materials where high moisture is present. Grows rapidly on wet building materials producing large black colonies.
Stemphylium	Plant pathogen (saprophyte) grows in decaying plant material. Grows well on cellulose materials. Growth indoors is rare.
Torula	Found outdoors growing in soil, dead plant stems. Grows indoors on cellulose materials such as wicker or straw baskets, wood or paper.
Trichoderma	Is common in soil litter and decaying plants; Readily breaks down cellulose and is a main agent of decomposition. Spores are greenish in color.
Ulocladium	Outdoors found as a plant pathogen (saprophyte). Indoors rapidly grows on cellulose materials such as gypsum board, wood, paper, paint, and cloth fibers where high moisture is present.

ACM Engineering & Environmental Services Inc. Assumes no liability or warranty on the use of, or interpretation of the data provided within this report. Responsibility lies solely on the client for the use and interpretation of the results provided herein. Results of analysis should not be interpreted without inspection of the area tested and consideration of the structures physical characteristics.

The contents of this document are for informational purposes only and are not intended as medical advice. If you have or suspect that you have health concerns you should contact a qualified health care professional.



AIHA Laboratory Accreditation Programs, LLC
acknowledges that
ACM Engineering & Environmental Services, Inc.
 26598 U.S. 20 West, South Bend, IN 46628
 Laboratory ID: LAP-102187

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs, LLC (AIHA LAP) accreditation to the ISO/IEC 17025:2017 international standard, General Requirements for the Competence of Testing and Calibration Laboratories in the following:

LABORATORY ACCREDITATION PROGRAMS

<input type="checkbox"/>	INDUSTRIAL HYGIENE	Accreditation Expires:
<input type="checkbox"/>	ENVIRONMENTAL LEAD	Accreditation Expires:
<input checked="" type="checkbox"/>	ENVIRONMENTAL MICROBIOLOGY	Accreditation Expires: September 01, 2025
<input type="checkbox"/>	FOOD	Accreditation Expires:
<input type="checkbox"/>	UNIQUE SCOPES	Accreditation Expires:
<input type="checkbox"/>	BERYLLIUM FIELD/MOBILE	Accreditation Expires:

Specific Field(s) of Testing/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA LAP requirements. This certificate is not valid without the attached Scope of Accreditation. Please review the AIHA LAP website (www.aihaaccreditedlabs.org) for the most current Scope.

Cheryl O. Morton

Cheryl O Morton
 Managing Director, AIHA Laboratory Accreditation Programs, LLC



AIHA Laboratory Accreditation Programs, LLC SCOPE OF ACCREDITATION

**ACM Engineering & Environmental
Services, Inc.**

26598 U.S. 20 West, South Bend, IN 46628

Laboratory ID: LAP-102187

Issue Date: 09/01/2023

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

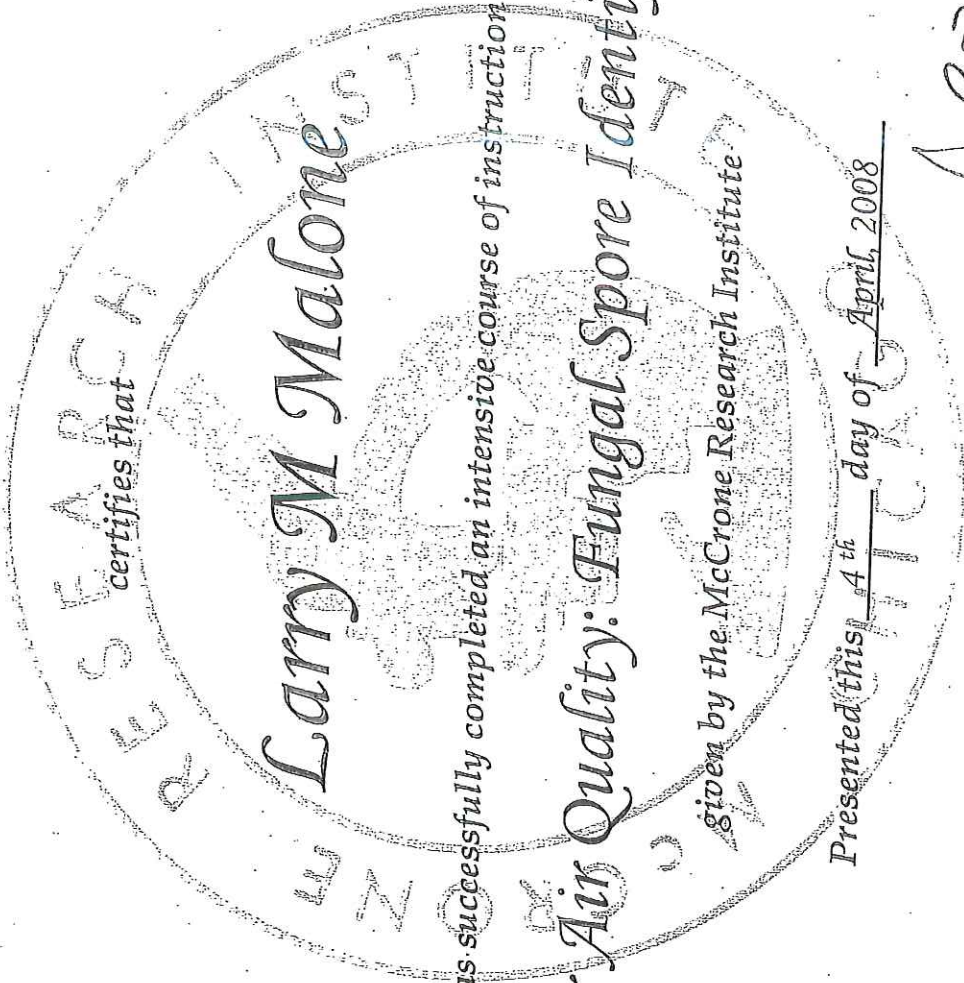
Environmental Microbiology Laboratory Accreditation Program (EMLAP)

Initial Accreditation Date: 04/01/2006

EMLAP Scope Category	Field of Testing (FOT)	Component, parameter or characteristic tested	Method	Method Description <i>(for internal methods only)</i>
Fungal	Air - Direct Examination	Spore Trap	TM-001	In House: Analysis of Air-O-cell Spore Trap Cassettes
Fungal	Bulk - Direct Examination	Tape Lifts from Solid Bulks	TM-002	In House: Analysis of Surface Tape Lift Samples
Fungal	Surface - Direct Examination	Tape Lifts	TM-002	In House: Analysis of Surface Tape Lift Samples

A complete listing of currently accredited EMLAP laboratories is available on the AIHA LAP, LLC website at:
<http://www.aihaaccreditedlabs.org>

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has successfully completed an intensive course of instruction in

Indoor Air Quality: Fungal Spore Identification

given by the McCrone Research Institute

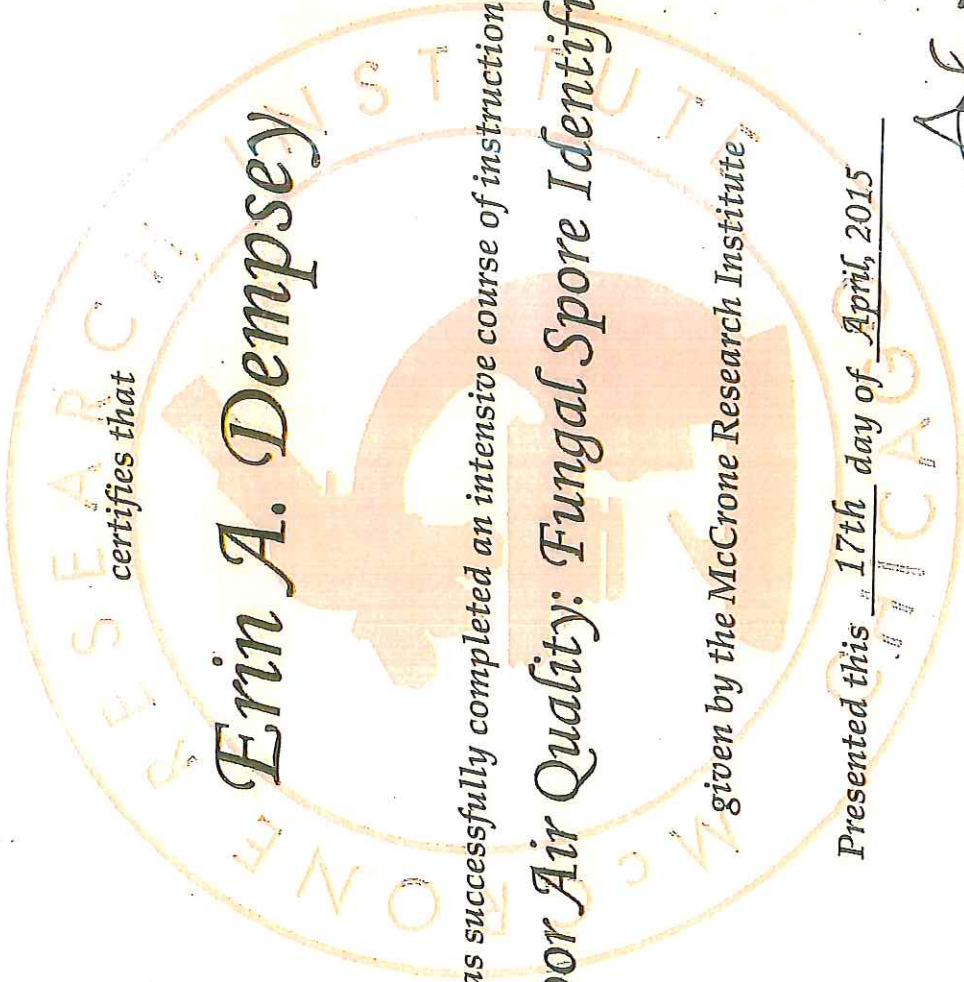
Presented this 4th day of April, 2008

[Signature]

Larry M. Malone

Course Date: March 31-April 4, 2008

MCCRONE RESEARCH INSTITUTE



certifies that

Erin A. Dempsey

has successfully completed an intensive course of instruction in

Indoor Air Quality: Fungal Spore Identification

given by the McCrone Research Institute

Presented this 17th day of April, 2015

[Signature]
[Signature]

Course Date: April 13-17, 2015



Ron DeSantis, Governor

Melanie S. Griffin, Secretary



STATE OF FLORIDA
DEPARTMENT OF BUSINESS AND PROFESSIONAL REGULATION

MOLD-RELATED SERVICES LICENSING PROGRAM

THE MOLD ASSESSOR HEREIN IS CERTIFIED UNDER THE
PROVISIONS OF CHAPTER 468, FLORIDA STATUTES

DEMPSEY, ERIN ALBERTA

26598 US 20 WEST
SOUTH BEND IN 46628

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IAQ ASSESSMENT REPORT

SECTION III:

IAQ-CALC MONITORING DATA ANALYSIS

FOR:

**VIGO COUNTY SCHOOL CORPORATION
P.O. BOX 3703
TERRE HAUTE, INDIANA 47803**

LOCATION:

**THE LEARNING LAB
55 SOUTH BROWN AVENUE
TERRE HAUTE, INDIANA 47803**

PERFORMED BY:

**ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, INDIANA 46628**

DATE:

NOVEMBER 13, 2023



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SECTION III: IAQ-CALC MONITORING DATA ANALYSIS

Relative humidity, air temperature, carbon dioxide, and carbon monoxide monitoring were performed utilizing TSI IAQ-Calc Indoor Air Quality Meters model number 7545. The monitoring instrument was positioned within the assessed areas and recorded continual readings at five (5) minute intervals over an approximate seven (7) hour time period. The TSI IAQ-Calc Indoor Air Quality Meters were stationed in four (4) assessed locations within the school, for a time period ranging from two and a half (2.5) hours to four and a half (4.5) hours per area. The locations chosen for the IAQ-Calc monitoring included areas representing normal school usage rooms as well as rooms and areas adjacent to bus loading and unloading zones.

The locations of the IAQ-Calc monitoring performed on October 4, 2023 are as follows:

- *Media Center/BizTown*
- *Room 215*
- *Room 108*
- *Room 208/209*

Relative Humidity and Air Temperature Monitoring

Relative humidity monitoring was performed in order to determine if the relative humidity within the testing locations were at a level that would promote microbial growth, which is generally above 60.0% relative humidity.

Relative humidity and air temperature monitoring were also performed in order to determine if these environmental conditions were within recommended guidelines for indoor thermal environmental conditions for human occupancy as established by the ASHRAE Standard 55-2020, which is detailed as follows:

The ASHRAE Standard 55-2020 Acceptable Temperature and Relative Humidity Ranges of Thermal Environmental Conditions for Human Occupancy

Measurement Type	Winter	Summer
Temperature	68.5°F to 74.5°F	73.0°F to 79.0°F
Relative Humidity	30.0% to 60.0%	30.0% to 60.0%



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All of the ambient air temperature readings within the assessed areas of the school were identified as being below the recommended indoor thermal environmental conditions as established by the ASHRAE Standard 55-2020 for summer of 73.0°F to 79.0°F during the monitoring periods. Mold typically has the capability to grow at temperatures ranging between 60.0°F and 80.0°F when proper conditions are present.

The ambient relative humidity readings collected within the assessed areas of the school were identified as being within and exceeding the recommended indoor environmental conditions of a minimum of 30.0% and maximum of 60.0% relative humidity as established by the ASHRAE Standard 55-2020 during the monitoring periods. Relative humidity readings that exceeded 60.0% were identified in the Media Center/BizTown. Generally, mold growth can occur on building materials and contents within an indoor environment where poor ventilation is present and the relative humidity exceeds 60.0%. Individuals have the capability to detect feelings of physical discomfort such as dry eyes, itchy skin, and excessive thirst in environments where the relative humidity is less than 30.0%.

Carbon Dioxide Monitoring

The OSHA PEL and NIOSH REL for carbon dioxide is 5,000 parts per million (ppm) as an eight hour TWA concentration. The level of carbon dioxide that is a threshold for physical discomfort is a concentration level of 1,000 ppm. The levels of carbon dioxide did not exceed the OSHA PEL or the NIOSH REL for carbon dioxide at any time during the monitoring periods within the assessed areas. The levels of carbon dioxide did exceed the threshold for physical discomfort concentration for a portion of the monitoring time period within Room 215.

Carbon Monoxide Monitoring

The current OSHA PEL for carbon monoxide is 50 ppm of air as an eight hour TWA concentration. NIOSH has established a REL for carbon monoxide of 35 ppm of air as an eight hour TWA and 200 ppm as a ceiling. The ACGIH has assigned carbon monoxide a TLV of 25 ppm as an eight hour TWA for a normal eight hour workday and a 40 hour workweek. The levels of carbon monoxide did not exceed the OSHA PEL, NIOSH REL, or ACGIH TLV for carbon monoxide during the monitoring time periods within the assessed areas.

The following pages contain the IAQ-Calc data relating to carbon dioxide, carbon monoxide, temperature, and relative humidity for the monitoring that was performed.

Model Number:	7545
Serial Number:	T75450909005
Test ID:	3
Test Abbreviation:	Test 003
Start Date:	10/4/2023
Start Time:	9:09:50
Duration (dd:hh:mm:ss):	0:04:25:01
Log Interval (mm:ss):	5:00
Number of points:	53
Notes:	Media Center/ BizTown

Statistics	Channel:	CO2	T	H	CO
	Units:	ppm	deg F	%rh	ppm
Average:		446	66.6	61	0.2
Minimum:		427	66.1	59.4	0.2
Time of Minimum:		13:34:51	13:29:51	9:14:50	13:34:51
Date of Minimum:		10/4/2023	10/4/2023	10/4/2023	10/4/2023
Maximum:		472	67.5	62.3	0.3
Time of Maximum:		9:14:50	9:14:50	9:59:50	9:14:50
Date of Maximum:		10/4/2023	10/4/2023	10/4/2023	10/4/2023

Calibration	Meter:	9/11/2023
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Date	Time	CO2	T	H	CO
MM/dd/yyyy	hh:mm:ss	ppm	deg F	%rh	ppm
10/4/2023	9:14:50	472	67.5	59.4	0.3
10/4/2023	9:19:50	466	67.1	60.5	0.3
10/4/2023	9:24:50	465	66.8	61	0.3
10/4/2023	9:29:50	465	66.7	61.4	0.3
10/4/2023	9:34:50	464	66.7	61.6	0.3
10/4/2023	9:39:50	463	66.6	61.8	0.3
10/4/2023	9:44:50	463	66.6	61.9	0.3
10/4/2023	9:49:50	463	66.7	62	0.3
10/4/2023	9:54:50	462	66.7	62.1	0.3
10/4/2023	9:59:50	462	66.8	62.3	0.3
10/4/2023	10:04:50	461	66.8	62.1	0.3
10/4/2023	10:09:51	459	66.8	61.6	0.3
10/4/2023	10:14:51	459	66.7	61.4	0.2
10/4/2023	10:19:51	460	66.8	61.2	0.3
10/4/2023	10:24:51	458	66.7	61.1	0.2
10/4/2023	10:29:51	456	66.7	61.1	0.2
10/4/2023	10:34:51	453	66.6	61.1	0.2
10/4/2023	10:39:51	452	66.5	61.1	0.2
10/4/2023	10:44:51	451	66.5	61.2	0.2
10/4/2023	10:49:51	449	66.5	61.4	0.2
10/4/2023	10:54:51	449	66.7	61.9	0.2

Date MM/dd/yyyy	Time hh:mm:ss	CO2 ppm	T deg F	H %rh	CO ppm
10/4/2023	10:59:51	448	66.8	61.9	0.2
10/4/2023	11:04:51	447	66.8	61.9	0.2
10/4/2023	11:09:51	446	66.8	62	0.2
10/4/2023	11:14:51	445	66.8	61.6	0.2
10/4/2023	11:19:51	444	66.8	61.3	0.2
10/4/2023	11:24:51	444	66.8	60.9	0.2
10/4/2023	11:29:51	443	66.8	60.7	0.2
10/4/2023	11:34:51	442	66.7	60.7	0.2
10/4/2023	11:39:51	442	66.8	60.6	0.2
10/4/2023	11:44:51	441	66.7	60.5	0.2
10/4/2023	11:49:51	440	66.7	60.4	0.2
10/4/2023	11:54:51	439	66.7	60.5	0.2
10/4/2023	11:59:51	439	66.7	60.7	0.2
10/4/2023	12:04:51	439	66.7	60.7	0.2
10/4/2023	12:09:51	437	66.8	61	0.2
10/4/2023	12:14:51	437	66.8	61.2	0.2
10/4/2023	12:19:51	437	66.9	61.3	0.3
10/4/2023	12:24:51	435	66.8	61	0.2
10/4/2023	12:29:51	434	66.7	60.8	0.2
10/4/2023	12:34:51	434	66.6	60.8	0.2
10/4/2023	12:39:51	433	66.6	60.7	0.2
10/4/2023	12:44:51	433	66.4	60.7	0.2
10/4/2023	12:49:51	433	66.4	60.5	0.2
10/4/2023	12:54:51	432	66.4	60.2	0.2
10/4/2023	12:59:51	432	66.3	60.2	0.2
10/4/2023	13:04:51	431	66.2	60.3	0.2
10/4/2023	13:09:51	430	66.2	60.3	0.2
10/4/2023	13:14:51	429	66.2	60.1	0.2
10/4/2023	13:19:51	428	66.2	59.8	0.2
10/4/2023	13:24:51	429	66.2	59.6	0.2
10/4/2023	13:29:51	427	66.1	59.7	0.2
10/4/2023	13:34:51	427	66.2	60.1	0.2

Model Number:	7545
Serial Number:	T75450909005
Test ID:	4
Test Abbreviation:	Test 004
Start Date:	10/4/2023
Start Time:	13:42:05
Duration (dd:hh:mm:ss):	0:02:30:01
Log Interval (mm:ss):	5:00
Number of points:	30
Notes:	Room 108

Statistics	Channel:	CO2	T	H	CO
	Units:	ppm	deg F	%rh	ppm
Average:		428	71.6	50.4	0.2
Minimum:		420	71.1	49.5	0.2
Time of Minimum:		15:17:05	16:12:06	14:57:05	15:52:06
Date of Minimum:		10/4/2023	10/4/2023	10/4/2023	10/4/2023
Maximum:		442	72.2	53.2	0.3
Time of Maximum:		13:47:05	14:37:05	13:47:05	13:47:05
Date of Maximum:		10/4/2023	10/4/2023	10/4/2023	10/4/2023

Calibration	Meter:	9/11/2023
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Date	Time	CO2	T	H	CO
MM/dd/yyyy	hh:mm:ss	ppm	deg F	%rh	ppm
10/4/2023	13:47:05	442	71.3	53.2	0.3
10/4/2023	13:52:05	432	71.5	52.4	0.3
10/4/2023	13:57:05	431	71.7	51.5	0.3
10/4/2023	14:02:05	431	71.8	50.8	0.3
10/4/2023	14:07:05	431	71.9	50.4	0.3
10/4/2023	14:12:05	433	72	50.5	0.3
10/4/2023	14:17:05	433	72.1	50.5	0.3
10/4/2023	14:22:05	433	72.1	50.5	0.3
10/4/2023	14:27:05	433	72.2	50.3	0.3
10/4/2023	14:32:05	432	72.2	50.2	0.3
10/4/2023	14:37:05	430	72.2	49.9	0.3
10/4/2023	14:42:05	429	72.2	49.6	0.2
10/4/2023	14:47:05	428	72	49.6	0.2
10/4/2023	14:52:05	427	71.9	49.7	0.2
10/4/2023	14:57:05	424	71.8	49.5	0.2
10/4/2023	15:02:05	422	71.8	49.6	0.2
10/4/2023	15:07:05	420	71.6	49.7	0.2
10/4/2023	15:12:05	420	71.5	50.2	0.2
10/4/2023	15:17:05	420	71.5	50.6	0.2
10/4/2023	15:22:06	421	71.4	50.6	0.2
10/4/2023	15:27:06	421	71.4	50.6	0.2
10/4/2023	15:32:06	423	71.4	50.4	0.2

Date MM/dd/yyyy	Time hh:mm:ss	CO2 ppm	T deg F	H %rh	CO ppm
10/4/2023	15:37:06	424	71.4	50.1	0.2
10/4/2023	15:42:06	426	71.3	50.1	0.2
10/4/2023	15:47:06	427	71.3	50.2	0.2
10/4/2023	15:52:06	429	71.2	50.4	0.2
10/4/2023	15:57:06	430	71.2	50.5	0.2
10/4/2023	16:02:06	430	71.2	50.4	0.2
10/4/2023	16:07:06	430	71.2	50.3	0.2
10/4/2023	16:12:06	429	71.1	50	0.2

Model Number:	7545
Serial Number:	T75451713002
Test ID:	4
Test Abbreviation:	Test 004
Start Date:	10/4/2023
Start Time:	13:34:24
Duration (dd:hh:mm:ss):	0:02:40:00
Log Interval (mm:ss):	5:00
Number of points:	32
Notes:	Room 208/209

Statistics	Channel:	CO2	T	H	CO
	Units:	ppm	deg F	%rh	ppm
Average:		404	70.1	50	1
Minimum:		398	69.9	49.4	1
Time of Minimum:		15:09:24	16:04:24	16:14:24	15:29:24
Date of Minimum:		10/4/2023	10/4/2023	10/4/2023	10/4/2023
Maximum:		421	70.2	51	1.1
Time of Maximum:		13:39:24	14:29:24	13:39:24	13:39:24
Date of Maximum:		10/4/2023	10/4/2023	10/4/2023	10/4/2023

Calibration	Meter:	9/11/2023
-------------	--------	-----------

Date	Time	CO2	T	H	CO
MM/dd/yyyy	hh:mm:ss	ppm	deg F	%rh	ppm
10/4/2023	13:39:24	421	70	51	1.1
10/4/2023	13:44:24	407	70	50.7	1
10/4/2023	13:49:24	403	70.1	50.6	1
10/4/2023	13:54:24	402	70.1	50.5	1
10/4/2023	13:59:24	402	70.1	50.4	1
10/4/2023	14:04:24	402	70.1	50.2	1
10/4/2023	14:09:24	404	70	50.1	1
10/4/2023	14:14:24	405	70.1	50.2	1
10/4/2023	14:19:24	406	70.1	50.5	1
10/4/2023	14:24:24	405	70.2	50.6	1
10/4/2023	14:29:24	405	70.2	50.4	1
10/4/2023	14:34:24	404	70.1	50.4	1
10/4/2023	14:39:24	404	70.1	50.2	1
10/4/2023	14:44:24	403	70	50	1
10/4/2023	14:49:24	401	70	49.9	1
10/4/2023	14:54:24	401	70	49.8	1
10/4/2023	14:59:24	400	70	49.7	1
10/4/2023	15:04:24	399	70	49.6	1
10/4/2023	15:09:24	398	70	49.5	1
10/4/2023	15:14:24	399	70.1	49.7	1
10/4/2023	15:19:24	399	70.1	49.8	1
10/4/2023	15:24:24	400	70.1	49.8	1

Date MM/dd/yyyy	Time hh:mm:ss	CO2 ppm	T deg F	H %rh	CO ppm
10/4/2023	15:29:24	399	70.1	49.9	1
10/4/2023	15:34:24	401	70.1	49.8	1
10/4/2023	15:39:24	403	70.1	49.6	1
10/4/2023	15:44:24	406	70.1	49.5	1
10/4/2023	15:49:24	407	70.1	49.6	1
10/4/2023	15:54:24	408	70.1	49.5	1
10/4/2023	15:59:24	408	70	49.7	1
10/4/2023	16:04:24	409	69.9	49.8	1
10/4/2023	16:09:24	410	70	49.6	1
10/4/2023	16:14:24	409	70	49.4	1

Model Number:	7545
Serial Number:	T75451713002
Test ID:	3
Test Abbreviation:	Test 003
Start Date:	10/4/2023
Start Time:	9:16:06
Duration (dd:hh:mm:ss):	0:04:15:00
Log Interval (mm:ss):	5:00
Number of points:	51
Notes:	Room 215

Statistics	Channel:	CO2	T	H	CO
	Units:	ppm	deg F	%rh	ppm
Average:		816	70	51.1	1.1
Minimum:		661	69.3	48.5	1
Time of Minimum:		12:36:06	10:16:06	13:31:06	13:11:06
Date of Minimum:		10/4/2023	10/4/2023	10/4/2023	10/4/2023
Maximum:		1033	70.6	57.4	1.5
Time of Maximum:		11:31:06	12:41:06	9:21:06	9:21:06
Date of Maximum:		10/4/2023	10/4/2023	10/4/2023	10/4/2023

Calibration	Meter:	9/11/2023
-------------	--------	-----------

Date	Time	CO2	T	H	CO
MM/dd/yyyy	hh:mm:ss	ppm	deg F	%rh	ppm
10/4/2023	9:21:06	834	69.8	57.4	1.5
10/4/2023	9:26:06	849	69.9	56.4	1.5
10/4/2023	9:31:06	819	69.8	55	1.4
10/4/2023	9:36:06	798	69.7	54.3	1.4
10/4/2023	9:41:06	769	69.6	53.9	1.3
10/4/2023	9:46:06	749	69.6	53.7	1.3
10/4/2023	9:51:06	734	69.6	53.6	1.2
10/4/2023	9:56:06	697	69.7	53.4	1.2
10/4/2023	10:01:06	669	69.6	53.4	1.2
10/4/2023	10:06:06	666	69.5	53.3	1.2
10/4/2023	10:11:06	680	69.4	53.3	1.2
10/4/2023	10:16:06	681	69.3	53.4	1.1
10/4/2023	10:21:06	693	69.3	53.2	1.2
10/4/2023	10:26:06	715	69.4	52.6	1.1
10/4/2023	10:31:06	751	69.5	52	1.1
10/4/2023	10:36:06	795	69.6	51.7	1.1
10/4/2023	10:41:06	809	69.7	51.3	1.1
10/4/2023	10:46:06	837	69.7	50.9	1.1
10/4/2023	10:51:06	873	69.6	50.4	1.1
10/4/2023	10:56:06	894	69.7	50.3	1.1
10/4/2023	11:01:06	920	69.8	49.9	1.1
10/4/2023	11:06:06	940	69.9	49.8	1.1

Date MM/dd/yyyy	Time hh:mm:ss	CO2 ppm	T deg F	H %rh	CO ppm
10/4/2023	11:11:06	958	69.9	49.8	1.1
10/4/2023	11:16:06	984	70.1	49.8	1.1
10/4/2023	11:21:06	1005	70	50	1.1
10/4/2023	11:26:06	1022	70.2	49.8	1.1
10/4/2023	11:31:06	1033	70.2	49.6	1.1
10/4/2023	11:36:06	972	70.2	49.7	1.1
10/4/2023	11:41:06	935	70.2	50	1.1
10/4/2023	11:46:06	870	70.4	49.9	1.1
10/4/2023	11:51:06	822	70.4	49.8	1.1
10/4/2023	11:56:06	778	70.4	49.6	1.1
10/4/2023	12:01:06	742	70.4	49.6	1.1
10/4/2023	12:06:06	717	70.4	49.5	1.1
10/4/2023	12:11:06	702	70.4	49.6	1.1
10/4/2023	12:16:06	703	70.3	49.9	1.1
10/4/2023	12:21:06	690	70.2	50	1.1
10/4/2023	12:26:06	677	70.2	50.5	1.1
10/4/2023	12:31:06	669	70.3	50.6	1.1
10/4/2023	12:36:06	661	70.4	50.6	1.1
10/4/2023	12:41:06	698	70.6	50.1	1.1
10/4/2023	12:46:06	740	70.5	49.9	1
10/4/2023	12:51:06	779	70.2	50.1	1.1
10/4/2023	12:56:06	817	70.3	50	1.1
10/4/2023	13:01:06	857	70.4	49.6	1.1
10/4/2023	13:06:06	891	70.3	49.3	1.1
10/4/2023	13:11:06	911	70.3	49.2	1
10/4/2023	13:16:06	933	70.2	49.1	1.1
10/4/2023	13:21:06	945	70.3	48.9	1.1
10/4/2023	13:26:06	964	70.3	48.6	1.1
10/4/2023	13:31:06	979	70.2	48.5	1.1



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TAMPA, FLORIDA • FORT LAUDERDALE, FLORIDA

IAQ ASSESSMENT REPORT

SECTION IV:

FORMALDEHYDE AIR SAMPLING ANALYSIS

FOR:

**VIGO COUNTY SCHOOL CORPORATION
P.O. BOX 3703
TERRE HAUTE, INDIANA 47803**

LOCATION:

**THE LEARNING LAB
55 SOUTH BROWN AVENUE
TERRE HAUTE, INDIANA 47803**

PERFORMED BY:

**ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, INDIANA 46628**

DATE:

NOVEMBER 13, 2023



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SECTION IV: FORMALDEHYDE AIR SAMPLING ANALYSIS

Formaldehyde air samples were collected utilizing personal air sampling pumps and DNPH/SEPPAK sampling media. A measured volume of sampled air was drawn through an individual cartridge containing DNPH designed for formaldehyde analysis. The air sampling pumps utilized for collecting the air samples were calibrated at measured volumes of air prior to their usage. The formaldehyde samples were analyzed by high performance liquid chromatography techniques utilizing the EPA method TO11A. A lab blank sample was included for analysis as an industry standard and for quality control purposes. The lab blank formaldehyde sample was taken from the same source sample lot as the other formaldehyde samples utilized during the sample collection. Samples were collected at a height of three to six (3 – 6) feet from the floor. Samples were assigned a number for identification purposes, recorded on a chain-of-custody form, and shipped cold via Fed-Ex to WOHL located in Madison, Wisconsin. High performance liquid chromatography analysis provides formaldehyde quantification and results are represented in parts per million (ppm).

The following regulatory standards and guidelines were utilized by ACM when conducting data analysis of the formaldehyde gas sample results generated during the assessment:

- The OSHA eight hour TWA PEL of 0.75 ppm
- The OSHA eight hour TWA action level of 0.5 ppm
- The NIOSH eight hour TWA REL of 0.016 ppm
- The ACGIH ceiling TLV of 0.3 ppm

The locations of the formaldehyde air samples collected on October 4, 2023 are as follows:

- *Media Center/BizTown* (TLL-F01)
- *Room 208/209* (TLL-F02)

Laboratory results of the two (2) air samples collected and analyzed for the identification and quantification of formaldehyde gas were all identified as being present in low levels. The air samples collected and analyzed for the identification and quantification of formaldehyde were below the OSHA PEL, OSHA TWA action level, NIOSH REL, and ACGIH ceiling TLV for formaldehyde within the assessed areas.

The following pages contain the Analytical Laboratory Report sheets and the Chain-of-Custody for the formaldehyde sampling performed, including the blank sample submitted for quality control purposes.



**Wisconsin Occupational
Health Laboratory**

WISCONSIN STATE LABORATORY OF HYGIENE
UNIVERSITY OF WISCONSIN-MADISON

2601 Agriculture Drive
Madison, WI 53718
Phone: (800) 446-0403
Web: wohl-lab.org
AIHA LAP, LLC Laboratory ID: LAP-101070

ERIN DEMPSEY
ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, IN 46628

Lab Workorder ID 706558
Visit/Project ID THE LEARNING LAB
PO
Received October 17, 2023
Reported October 27, 2023
Report ID 11338926

Previous Report IDs

Dear ERIN DEMPSEY:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2023. All samples/specimens received by the laboratory were acceptable for testing. Sample results were not blank corrected, and all quality control met laboratory standards unless otherwise noted in the report narrative. All results apply to the samples as received and reported concentrations were calculated with information supplied by the sample submitter.

Please contact the lab if you have any questions concerning this report.

Sincerely,

Steve Strebel, Laboratory Director

Analyst - JOHN GLOWACKI



Final Report

Lab ID: 706558001	Sample ID: TLL-F01	Media: DNPH Cartridge (XPOSURE)
Sampling Date: 10/4/2023	Matrix: Air	Sampled Time: 348 M

Media overloaded. More than 50% of the DNPH was consumed. Results may be underestimated.

RESULTS

Analyte	Method	Analysis Date	Air Volume	Reporting Limit	Front	Rear	Total	Air Concentration	TWA
Formaldehyde	EPA TO11A	10/26/2023	348 L	0.80 ug			2.5 ug	0.0072 mg/m3	0.0058 ppm

Lab ID: 706558002	Sample ID: TLL-F02	Media: DNPH Cartridge (XPOSURE)
Sampling Date: 10/4/2023	Matrix: Air	Sampled Time: 348 M

Media overloaded. More than 50% of the DNPH was consumed. Results may be underestimated.

RESULTS

Analyte	Method	Analysis Date	Air Volume	Reporting Limit	Front	Rear	Total	Air Concentration	TWA
Formaldehyde	EPA TO11A	10/26/2023	348 L	0.80 ug			2.1 ug	0.0060 mg/m3	0.0049 ppm

Abbreviations:

mg = milligrams ppm or ppmv = parts per million /m3 = per cubic meter
 ug = micrograms ppb or ppbv = parts per billion ng = nanograms
 < Less Than. The analyte, if present, is at a level too low to be accurately quantitated by the method used

Displayed values on report have been rounded to 2 significant figures. Please contact the laboratory if you have any questions regarding our result calculation or rounding. All samples were received by the laboratory in acceptable condition unless otherwise noted.

The results in this report apply only to the samples, specifically listed above, and tested at the Wisconsin Occupational Health Laboratory

This report is not to be reproduced except in its entirety

End of Analytical Report

WISCONSIN OCCUPATIONAL HEALTH LABORATORY (WOHL) SAMPLE SUBMISSION FORM

Bill To: ACM Eng. & Env. Services
 26598 US 20 West
 South Bend, IN 46628

WOHL COMP# 7732
Phone # (574) 234-8435
FAX # (574) 234-6800

Email Address

Project The Learning Lab

erin@acmenv.com

P.O. # _____ **Date Sampled:** 10-4-23


Turnaround: RUSH PRIORITY NORMAL
 { must be prearranged }

PLEASE GROUP SAMPLES BY MEDIA USED AND ANALYSIS REQUESTED.

SPECIAL INSTRUCTIONS: Please email completed sample submission form.

10/17/23 12:56
 7732

 706558

LAB USE ONLY WOHL SAMPLE #	CUSTOMER FIELD #	SAMPLE MEDIA	WIPE SAMPLES		FOR AIR		SAMPLES ONLY		ANALYSIS REQUEST
			SIZE OF AREA WIPED EX: 2 IN x 2 IN	TIME ON	TIME OFF	TOTAL TIME (MINS)	FLOW RATE (L/MIN)	VOLUME (LITERS)	
10/17/23 12:56 TLL-F01  706558001	TLL-F01	SEPPAK		9:53	3:41	348	1.0	348.0	Formaldehyde Concentration
	TLL-F02	SEPPAK		9:51	3:39	348	1.0	348.0	Formaldehyde Concentration

CHAIN OF CUSTODY: Relinquished Erin Dempsey Date 10-16-23 Received [Signature]

UPS, Fed-Ex & Other Shippers US Postal Service **Phone** 608 224-6210 **Sampling Questions** WOHLsampling@mail.slh.wisc.edu

Wisconsin Occupational Health Lab Wisconsin Occupational Health Lab PO Box 7996 Madison, WI 53707-7996 **FAX** 608 224-6213 **Web Page/Order Media** <http://www.slh.wisc.edu/wohl>

2601 Agriculture Drive Madison, WI 53718

RECEIVED OCT 17 2023

SAMPLE CONDITION _____ OK

NOT OK _____

See Sample Receipt Record



**Wisconsin Occupational
Health Laboratory**

WISCONSIN STATE LABORATORY OF HYGIENE
UNIVERSITY OF WISCONSIN-MADISON

2601 Agriculture Drive
Madison, WI 53718
Phone: (800) 446-0403
Web: wohl-lab.org
AIHA LAP, LLC Laboratory ID: LAP-101070

ERIN DEMPSEY
ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, IN 46628

Lab Workorder ID 706560
Visit/Project ID VCSC
PO
Received October 17, 2023
Reported October 27, 2023
Report ID 11338934

Previous Report IDs

Dear ERIN DEMPSEY:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2023. All samples/specimens received by the laboratory were acceptable for testing. Sample results were not blank corrected, and all quality control met laboratory standards unless otherwise noted in the report narrative. All results apply to the samples as received and reported concentrations were calculated with information supplied by the sample submitter.

Please contact the lab if you have any questions concerning this report.

Sincerely,

Steve Strebel, Laboratory Director

Analyst - JOHN GLOWACKI



Final Report

Lab ID: 706560001	Sample ID: VIGO2023-BLANK	Media: DNPH Cartridge (XPOSURE)
Sampling Date: 10/3/2023	Matrix: Air	Sampled Time:

Analyte	Method	Analysis Date	Air Volume	Reporting Limit	RESULTS			TWA	
					Front	Rear	Total		
Formaldehyde	EPA TO11A	10/26/2023		0.80 ug			<0.80 ug	n/a	n/a

Abbreviations:
 mg = milligrams ppm or ppmv = parts per million /m3 = per cubic meter
 ug = micrograms ppb or ppbv = parts per billion ng = nanograms
 < Less Than. The analyte, if present, is at a level too low to be accurately quantitated by the method used

Displayed values on report have been rounded to 2 significant figures. Please contact the laboratory if you have any questions regarding our result calculation or rounding. All samples were received by the laboratory in acceptable condition unless otherwise noted.

The results in this report apply only to the samples, specifically listed above, and tested at the Wisconsin Occupational Health Laboratory

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End of Analytical Report

WISCONSIN OCCUPATIONAL HEALTH LABORATORY (WOHL) SAMPLE SUBMISSION FORM

Bill To: ACM Eng. & Env. Services

26598 US 20 West

South Bend, IN 46628

WOHL COMP# 7732

Phone # (574) 234-8435

FAX # (574) 234-6800

Email Address

Project VCSC

erin@acmenv.com

P.O. # _____

Date Sampled: 10-3-23

Turnaround: _____

RUSH PRIORITY NORMAL
 { must be prearranged }

PLEASE GROUP SAMPLES BY MEDIA USED AND ANALYSIS REQUESTED.

SPECIAL INSTRUCTIONS: Please email completed sample submission form.

10/17/23 12:59
7732



LAB USE ONLY	WOHL SAMPLE #	CUSTOMER FIELD #	SAMPLE MEDIA	WIPE SAMPLES		FOR AIR SAMPLES ONLY			ANALYSIS REQUEST	
				SIZE OF AREA WIPED EX: 2 IN x 2 IN	TIME ON	TIME OFF	TOTAL TIME (MINS)	FLOW RATE (L/MIN)		VOLUME (LITERS)
		Vigo2023-FBlank	SEPPAK							Formaldehyde Concentration

10/17/23 12:59
VIGO2023 - BLANK
 706560001

Erin Dempsey

Date 10-16-23

Received

REC'D OCT 17 2023

CHAIN OF CUSTODY: Relinquished
UPS, Fed-Ex & Other Shippers
 Wisconsin Occupational Health Lab
 2601 Agriculture Drive
 Madison, WI 53718

US Postal Service
 Wisconsin Occupational Health Lab
 PO Box 7996
 Madison, WI 53707-7996

Phone 608 224-6210
 800 446-0403
 FAX 608 224-6213

Sampling Questions
 WOHLsampling@mail.slh.wisc.edu
 Web Page/Order Media
<http://www.slh.wisc.edu/wohl>

SAMPLE CONDITION
 _____ OK
 _____ NOT OK
 See Sample Receipt Record



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IAQ ASSESSMENT REPORT

SECTION V:

NUISANCE PARTICULATE MATTER AIR SAMPLING ANALYSIS

FOR:

**VIGO COUNTY SCHOOL CORPORATION
P.O. BOX 3703
TERRE HAUTE, INDIANA 47803**

LOCATION:

**THE LEARNING LAB
55 SOUTH BROWN AVENUE
TERRE HAUTE, INDIANA 47803**

PERFORMED BY:

**ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, INDIANA 46628**

DATE:

NOVEMBER 13, 2023



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SECTION V: NUISANCE PARTICULATE MATTER AIR SAMPLING ANALYSIS

Air samples collected for gravimetric filter weight analysis for the quantification of airborne nuisance particulate matter were sampled using 37 mm two piece pre-weighted cassettes (yellow band) containing a five micrometer (5 μm) polyvinyl chloride (PVC) filter attached to a personal air sampling pump. The personal air sampling pumps utilized for collecting these air samples were calibrated at measured volumes of air prior to their usage. The samples were collected at a height of three to six (3 – 6) feet from the floor. A lab blank sample was included for analysis as an industry standard and quality control purposes. The lab blank nuisance particulate matter sample was taken from the same source sample lot as the other nuisance particulate matter samples utilized during the sample collection. Each sample was assigned an identification number, recorded on a chain-of-custody form, and shipped via Fed-Ex to WOHL located in Madison, Wisconsin. The nuisance particulate matter samples were analyzed by gravimetric filter weight techniques based on NIOSH method 0500. Gravimetric filter weight analysis provides nuisance particulate matter quantification and results are represented in milligrams per meter cubed (mg/m^3).

The OSHA eight hour TWA PEL for nuisance particulate matter is 15.0 mg/m^3 . The ACGIH TLV TWA for nuisance particulate matter is 10.0 mg/m^3 .

The locations of the nuisance particulate matter air samples collected on October 4, 2023 are as follows:

- *Room 208/209 (TLL-ND01)*
- *Hallway Intersection Adjacent to the Main Entrance (TLL-ND02)*

The laboratory results of the two (2) air samples collected within the school and analyzed for the quantification of nuisance particulate matter did not exceed the OSHA eight hour PEL or ACGIH TLV. The results of the samples collected during the assessment were determined to contain concentrations of airborne nuisance particulate matter that were less than the minimum reporting value for the analytical equipment utilized for analysis. The concentrations of airborne nuisance particulate matter present within the results of the samples collected within the school may be considered to be present in low levels.

The following pages contain the Analytical Laboratory Report sheets and chain-of-custody form for the performed nuisance particulate matter air sampling, including the blank sample submitted for quality control purposes.



**Wisconsin Occupational
Health Laboratory**

WISCONSIN STATE LABORATORY OF HYGIENE
UNIVERSITY OF WISCONSIN-MADISON

2601 Agriculture Drive
Madison, WI 53718
Phone: (800) 446-0403
Web: wohl-lab.org
AIHA LAP, LLC Laboratory ID: LAP-101070

ERIN DEMPSEY
ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, IN 46628

Lab Workorder ID 706505
Visit/Project ID THE LEARNING LAB
PO
Received October 17, 2023
Reported October 18, 2023
Report ID 11308363

Previous Report IDs

Dear ERIN DEMPSEY:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2023. All samples/specimens received by the laboratory were acceptable for testing. Sample results were not blank corrected, and all quality control met laboratory standards unless otherwise noted in the report narrative. All results apply to the samples as received and reported concentrations were calculated with information supplied by the sample submitter.

Please contact the lab if you have any questions concerning this report.

Sincerely,

Steve Strebel, Laboratory Director

Analyst - AARON HIRSCH



Final Report

Lab ID: 706505001	Sample ID: TLL-ND01	Media: PVC filter (Weighed or unweighed)
Sampling Date: 10/4/2023	Matrix: Air	Sampled Time: 393 M

Analyte	Method	Analysis Date	Air Volume	Reporting Limit	RESULTS			TWA
					Front	Rear	Total	
Total Dust	NIOSH 0500	10/18/2023	786 L	53 ug			<53 ug	<0.067 mg/m ³

Lab ID: 706505002	Sample ID: TLL-ND02	Media: PVC filter (Weighed or unweighed)
Sampling Date: 10/4/2023	Matrix: Air	Sampled Time: 373 M

Analyte	Method	Analysis Date	Air Volume	Reporting Limit	RESULTS			TWA
					Front	Rear	Total	
Total Dust	NIOSH 0500	10/18/2023	746 L	53 ug			<53 ug	<0.071 mg/m ³

Abbreviations:

mg = milligrams ppm or ppmv = parts per million /m³ = per cubic meter
 ug = micrograms ppb or ppbv = parts per billion ng = nanograms
 < Less Than. The analyte, if present, is at a level too low to be accurately quantitated by the method used

Displayed values on report have been rounded to 2 significant figures. Please contact the laboratory if you have any questions regarding our result calculation or rounding. All samples were received by the laboratory in acceptable condition unless otherwise noted.

The results in this report apply only to the samples, specifically listed above, and tested at the Wisconsin Occupational Health Laboratory

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End of Analytical Report

WISCONSIN OCCUPATIONAL HEALTH LABORATORY (WOHL) SAMPLE SUBMISSION FORM

Bill To: ACM Eng. & Env. Services

26598 US 20 West
South Bend, IN 46628



WOHL COMP# 7732
Phone # (574) 234-8435
FAX # (574) 234-6800
Email Address _____

Send Results To ATTN: Erin Dempsey

10/17/23 12:22
7732

706505

Project: The Learning Lab

erin@acmenv.com





P.O. # _____

Date Sampled: 10-4-23

SPECIAL INSTRUCTIONS: Please email completed sample submission form.

Turnaround: RUSH PRIORITY NORMAL
{ must be prearranged }

PLEASE GROUP SAMPLES BY MEDIA USED AND ANALYSIS REQUESTED. ♦

LAB USE ONLY	WOHL SAMPLE #	CUSTOMER FIELD #	SAMPLE MEDIA	WIPE SAMPLES		FOR AIR		SAMPLES ONLY		ANALYSIS REQUEST
				SIZE OF AREA WIPED EX: 2 IN x 2 IN	TIME ON	TIME OFF	TOTAL TIME (MINS)	FLOW RATE (L/MIN)	VOLUME (LITERS)	
	10/17/23 12:22 TLL-ND01 	TLL-ND01	Media #15		9:33	4:06	393	2.0	786.0	Nuisance Dust Concentration
		TLL-ND02	Media #15		9:34	3:47	373	2.0	746.0	Nuisance Dust Concentration
	706505001 	TLL-VOC01	Media #1		9:42	1:19	217	0.2	43.4	Solvent Scan A
		TLL-VOC02	Media #1		1:27	4:06	159	0.2	31.8	Solvent Scan A
	10/17/23 12:22 TLL-ND02 									
	706505002 									

CHAIN OF CUSTODY: Relinquished

UPS, Fed-Ex & Other Shippers

Wisconsin Occupational Health Lab

2601 Agriculture Drive
Madison, WI 53718

Erin Dempsey

US Postal Service

Wisconsin Occupational Health Lab

PO Box 7996
Madison, WI 53707-7996

Date 10-16-23

Phone 608 224-6210

FAX 608 224-6213

Received [Signature]

Sampling Questions

WOHLsamplng@mail.slh.wisc.edu
Web Page/Order Media
<http://www.slh.wisc.edu/wohl>

REC'D OCT 17 2023

SAMPLE CONDITION

OK

See Sample Receipt Record



**Wisconsin Occupational
Health Laboratory**

WISCONSIN STATE LABORATORY OF HYGIENE
UNIVERSITY OF WISCONSIN-MADISON

2601 Agriculture Drive
Madison, WI 53718
Phone: (800) 446-0403
Web: wohl-lab.org
AIHA LAP, LLC Laboratory ID: LAP-101070

ERIN DEMPSEY
ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, IN 46628

Lab Workorder ID 706497
Visit/Project ID VCSC
PO
Received October 17, 2023
Reported October 18, 2023
Report ID 11308353

Previous Report IDs

Dear ERIN DEMPSEY:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2023. All samples/specimens received by the laboratory were acceptable for testing. Sample results were not blank corrected, and all quality control met laboratory standards unless otherwise noted in the report narrative. All results apply to the samples as received and reported concentrations were calculated with information supplied by the sample submitter.

Please contact the lab if you have any questions concerning this report.

Sincerely,

Steve Strebel, Laboratory Director

Analyst - AARON HIRSCH



Final Report

Lab ID: 706497001	Sample ID: VIGO2023-NDBLANK	Media: PVC filter (Weighed or unweighed)
Sampling Date: 10/3/2023	Matrix: Air	Sampled Time:

Analyte	Method	Analysis Date	Air Volume	Reporting Limit	RESULTS			TWA
					Front	Rear	Total	
Total Dust	NIOSH 0500	10/18/2023		53 ug			<53 ug	n/a

Abbreviations:
 mg = milligrams ppm or ppmv = parts per million /m3 = per cubic meter
 ug = micrograms ppb or ppbv = parts per billion ng = nanograms
 < Less Than. The analyte, if present, is at a level too low to be accurately quantitated by the method used

Displayed values on report have been rounded to 2 significant figures. Please contact the laboratory if you have any questions regarding our result calculation or rounding. All samples were received by the laboratory in acceptable condition unless otherwise noted.

The results in this report apply only to the samples, specifically listed above, and tested at the Wisconsin Occupational Health Laboratory

This report is not to be reproduced except in its entirety

End of Analytical Report

WISCONSIN OCCUPATIONAL HEALTH LABORATORY (WOHL) SAMPLE SUBMISSION FORM

Bill To: ACM Eng. & Env. Services

26598 US 20 West

South Bend, IN 46628

WOHL COMP# 7732

Phone # (574) 234-8435

FAX # (574) 234-6800

Email Address

erin@acmenv.com

Date Sampled: 10-3-23

SPECIAL INSTRUCTIONS: Please email completed sample submission form.

Send Results To ATTN: Erin Dempsey

10/17/23 12:18
7732



Project: VCSC

P.O. # _____

Turnaround: RUSH PRIORITY NORMAL

{ must be prearranged }

PLEASE GROUP SAMPLES BY MEDIA USED AND ANALYSIS REQUESTED. ◆

LAB USE ONLY	WOHL SAMPLE #	CUSTOMER FIELD #	SAMPLE MEDIA	WIPE SAMPLES		FOR AIR SAMPLES ONLY			ANALYSIS REQUEST
				SIZE OF AREA WIPED EX: 2 IN x 2 IN	TIME ON	TIME OFF	TOTAL TIME (MINS)	FLOW RATE (L/MIN)	
		Vigo2023-NDBLANK	Media #15						Nuisance Dust Concentration
		Vigo2023-VOCBlank	Media #1						Solvent Scan A

10/17/23 12:18
VIGO2023-NDBLANK
706497001

CHAIN OF CUSTODY: Relinquished

Erin Dempsey
US Postal Service

Wisconsin Occupational Health Lab
2601 Agriculture Drive
Madison, WI 53718

Date 10-16-23

Phone 608 224-6210

FAX 608 224-6213

Received [Signature]

Sampling Questions

WOHLsam pling@mail.slh.wisc.edu

Web Page/Order Media

http://www.slh.wisc.edu/wohl

REC'D OCT 17 2022

SAMPLE CONDITION

OK

NOT OK

See Sample Receipt Record



ENGINEERING &
ENVIRONMENTAL
SERVICES

ACM ENGINEERING & ENVIRONMENTAL SERVICES

SOUTH BEND, INDIANA • FORT WAYNE, INDIANA • ELMHURST, ILLINOIS
TAMPA, FLORIDA • FORT LAUDERDALE, FLORIDA

IAQ ASSESSMENT REPORT

SECTION VI:

VOLATILE ORGANIC COMPOUND AIR SAMPLING ANALYSIS

FOR:

**VIGO COUNTY SCHOOL CORPORATION
P.O. BOX 3703
TERRE HAUTE, INDIANA 47803**

LOCATION:

**THE LEARNING LAB
55 SOUTH BROWN AVENUE
TERRE HAUTE, INDIANA 47803**

PERFORMED BY:

**ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, INDIANA 46628**

DATE:

NOVEMBER 13, 2023



ENGINEERING &
ENVIRONMENTAL
SERVICES

ACM ENGINEERING & ENVIRONMENTAL SERVICES

SOUTH BEND, INDIANA • FORT WAYNE, INDIANA • ELMHURST, ILLINOIS
TAMPA, FLORIDA • FORT LAUDERDALE, FLORIDA

SECTION VI: VOLATILE ORGANIC COMPOUND AIR SAMPLING ANALYSIS

VOC air samples were collected utilizing low volume personal air sampling pumps. The air sampling pumps utilized for collecting these air samples were calibrated at measured volumes of air prior to their usage. The measured volumes of sampled air were drawn through individual activated charcoal tubes. The samples were analyzed by Gas Chromatography methods. A lab blank sample was included for analysis as an industry standard and quality control purposes. The lab blank VOC sample was taken from the same source sample lot as the other VOC samples utilized during the sample collection. Samples were collected at a height of three to six (3 – 6) feet from the floor. Samples were assigned a number for identification purposes, recorded on a chain-of-custody form, and shipped via Fed-Ex to the WOHL located in Madison, Wisconsin. The VOC samples were analyzed by Gas Chromatography techniques based on NIOSH method 1500/1501 and OSHA method 5000. Gas Chromatography analysis provides VOC quantification and results are represented in mg/m³ and ppm.

The locations of the VOC air samples collected on October 4, 2023 are as follows:

- *Media Center/BizTown (TLL-VOC01)*
- *Room 208/209 (TLL-VOC02)*

The results of the air sampling indicate that the concentrations of VOC analytes present within the two (2) sampled locations of the school did not exceed any OSHA PEL or NIOSH REL. The sample results do not indicate that sources are present within the assessed locations of the school that are resulting in the airborne amplification of the analytes identified during the VOC sampling. The concentrations of airborne VOCs present within the results of the samples collected within the school may be considered to be present in low levels.

The following pages contain the Analytical Laboratory Report sheets and chain-of-custody form for the performed VOC air sampling, including the blank sample submitted for quality control purposes.



**Wisconsin Occupational
Health Laboratory**

WISCONSIN STATE LABORATORY OF HYGIENE
UNIVERSITY OF WISCONSIN-MADISON

2601 Agriculture Drive
Madison, WI 53718
Phone: (800) 446-0403
Web: wohl-lab.org
AIHA LAP, LLC Laboratory ID: LAP-101070

ERIN DEMPSEY
ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, IN 46628

Lab Workorder ID 706507
Visit/Project ID THE LEARNING LAB
PO
Received October 17, 2023
Reported October 27, 2023
Report ID 11337031

Previous Report IDs

Dear ERIN DEMPSEY:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2023. All samples/specimens received by the laboratory were acceptable for testing. Sample results were not blank corrected, and all quality control met laboratory standards unless otherwise noted in the report narrative. All results apply to the samples as received and reported concentrations were calculated with information supplied by the sample submitter.

Please contact the lab if you have any questions concerning this report.

Sincerely,

Steve Strebel, Laboratory Director

Analyst - PATRICK RILEY



Final Report

Lab ID: 706507001	Sample ID: TLL-VOC01	Media: Charcoal tube, small
Sampling Date: 10/4/2023	Matrix: Air	Sampled Time: 217 M

Analyte	Method	Analysis Date	Air Volume	Reporting Limit	RESULTS					TWA
					Front	Rear	Total	Air Concentration		
4-tert-Butyltoluene	NIOSH 1500/1501 and OSHA 5000	10/23/2023	43.4 L	5.0 ug	<5.0 ug	<5.0 ug	<5.0 ug	<0.12 mg/m3	<0.019 ppm	
Acetone		10/23/2023	43.4 L	1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	<0.037 mg/m3	<0.016 ppm	
Benzene		10/23/2023	43.4 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.039 mg/m3	<0.012 ppm	
Bromopropane (1-)		10/23/2023	43.4 L	2.7 ug	<2.7 ug	<2.7 ug	<2.7 ug	<0.062 mg/m3	<0.012 ppm	
Butyl Acetate (n-)		10/23/2023	43.4 L	1.8 ug	<1.8 ug	<1.8 ug	<1.8 ug	<0.041 mg/m3	<0.0087 ppm	
Chlorobenzotrifluoride (4-)		10/23/2023	43.4 L	5.4 ug	<5.4 ug	<5.4 ug	<5.4 ug	<0.12 mg/m3	<0.017 ppm	
Cyclohexane		10/23/2023	43.4 L	2.5 ug	<2.5 ug	<2.5 ug	<2.5 ug	<0.058 mg/m3	<0.017 ppm	
Cyclohexanone		10/23/2023	43.4 L	4.0 ug	<4.0 ug	<4.0 ug	<4.0 ug	<0.092 mg/m3	<0.023 ppm	
Diisobutyl Ketone		10/23/2023	43.4 L	3.2 ug	<3.2 ug	<3.2 ug	<3.2 ug	<0.074 mg/m3	<0.013 ppm	
Ethanol		10/23/2023	43.4 L	100 ug	<100 ug	<100 ug	<100 ug	<2.3 mg/m3	<1.2 ppm	
Ethyl Benzene		10/23/2023	43.4 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.039 mg/m3	<0.0090 ppm	
Ethyl acetate		10/23/2023	43.4 L	1.8 ug	<1.8 ug	<1.8 ug	<1.8 ug	<0.041 mg/m3	<0.012 ppm	
Isopropyl Alcohol		10/23/2023	43.4 L	100 ug	<100 ug	<100 ug	<100 ug	<2.3 mg/m3	<0.94 ppm	
Isopropylbenzene (Cumene)		10/23/2023	43.4 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.039 mg/m3	<0.0080 ppm	
Limonene		10/23/2023	43.4 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.039 mg/m3	<0.0070 ppm	
Methyl Amyl Ketone (n-)		10/23/2023	43.4 L	1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	<0.037 mg/m3	<0.0079 ppm	
Methyl Ethyl Ketone (MEK)		10/23/2023	43.4 L	1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	<0.037 mg/m3	<0.013 ppm	
Methyl isobutyl ketone		10/23/2023	43.4 L	1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	<0.037 mg/m3	<0.0090 ppm	
Methylene chloride		10/23/2023	43.4 L	5.3 ug	<5.3 ug	<5.3 ug	<5.3 ug	<0.12 mg/m3	<0.035 ppm	
Pentane		10/23/2023	43.4 L	5.0 ug	<5.0 ug	<5.0 ug	<5.0 ug	<0.12 mg/m3	<0.039 ppm	
Pentanone (2-)		10/23/2023	43.4 L	1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	<0.037 mg/m3	<0.010 ppm	
Tetrachloroethene		10/23/2023	43.4 L	3.5 ug	<3.5 ug	<3.5 ug	<3.5 ug	<0.081 mg/m3	<0.012 ppm	
Toluene		10/23/2023	43.4 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.039 mg/m3	<0.010 ppm	
Total VOC as hexane		10/23/2023	43.4 L	1.3 ug	<1.3 ug	<1.3 ug	<1.3 ug	<0.030 mg/m3	<0.0085 ppm	
Trichloroethene		10/23/2023	43.4 L	2.9 ug	<2.9 ug	<2.9 ug	<2.9 ug	<0.067 mg/m3	<0.012 ppm	



Final Report

Trimethylbenzenes (isomers)	10/23/2023	43.4 L	1.8 ug	<1.8 ug	<1.8 ug	<1.8 ug	<0.041 mg/m3	<0.0084 ppm
Xylene (total)	10/23/2023	43.4 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.039 mg/m3	<0.0090 ppm
n-Hexane	10/23/2023	43.4 L	1.3 ug	<1.3 ug	<1.3 ug	<1.3 ug	<0.030 mg/m3	<0.0085 ppm

Lab ID: 706507002	Sample ID: TLL-VOC02	Media: Charcoal tube, small
Sampling Date: 10/4/2023	Matrix: Air	Sampled Time: 159 M

Analyte	Method	Analysis Date	Air Volume	Reporting Limit	RESULTS				
					Front	Rear	Total	Air Concentration	TWA
4-tert-Butyltoluene	NIOSH 1500/1501 and OSHA 5000	10/23/2023	31.8 L	5.0 ug	<5.0 ug	<5.0 ug	<5.0 ug	<0.16 mg/m3	<0.026 ppm
Acetone		10/23/2023	31.8 L	1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	<0.050 mg/m3	<0.021 ppm
Benzene		10/23/2023	31.8 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.053 mg/m3	<0.017 ppm
Bromopropane (1-)		10/23/2023	31.8 L	2.7 ug	<2.7 ug	<2.7 ug	<2.7 ug	<0.085 mg/m3	<0.017 ppm
Butyl Acetate (n-)		10/23/2023	31.8 L	1.8 ug	<1.8 ug	<1.8 ug	<1.8 ug	<0.057 mg/m3	<0.012 ppm
Chlorobenzotrifluoride (4-)		10/23/2023	31.8 L	5.4 ug	<5.4 ug	<5.4 ug	<5.4 ug	<0.17 mg/m3	<0.023 ppm
Cyclohexane		10/23/2023	31.8 L	2.5 ug	<2.5 ug	<2.5 ug	<2.5 ug	<0.079 mg/m3	<0.023 ppm
Cyclohexanone		10/23/2023	31.8 L	4.0 ug	<4.0 ug	<4.0 ug	<4.0 ug	<0.13 mg/m3	<0.031 ppm
Diisobutyl Ketone		10/23/2023	31.8 L	3.2 ug	<3.2 ug	<3.2 ug	<3.2 ug	<0.10 mg/m3	<0.017 ppm
Ethanol		10/23/2023	31.8 L	100 ug	<100 ug	<100 ug	<100 ug	<3.1 mg/m3	<1.7 ppm
Ethyl Benzene		10/23/2023	31.8 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.053 mg/m3	<0.012 ppm
Ethyl acetate		10/23/2023	31.8 L	1.8 ug	<1.8 ug	<1.8 ug	<1.8 ug	<0.057 mg/m3	<0.016 ppm
Isopropyl Alcohol		10/23/2023	31.8 L	100 ug	<100 ug	<100 ug	<100 ug	<3.1 mg/m3	<1.3 ppm
Isopropylbenzene (Cumene)		10/23/2023	31.8 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.053 mg/m3	<0.011 ppm
Limonene		10/23/2023	31.8 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.053 mg/m3	<0.0096 ppm
Methyl Amyl Ketone (n-)		10/23/2023	31.8 L	1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	<0.050 mg/m3	<0.011 ppm
Methyl Ethyl Ketone (MEK)		10/23/2023	31.8 L	1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	<0.050 mg/m3	<0.017 ppm
Methyl isobutyl ketone		10/23/2023	31.8 L	1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	<0.050 mg/m3	<0.012 ppm
Methylene chloride		10/23/2023	31.8 L	5.3 ug	<5.3 ug	<5.3 ug	<5.3 ug	<0.17 mg/m3	<0.048 ppm
Pentane		10/23/2023	31.8 L	5.0 ug	<5.0 ug	<5.0 ug	<5.0 ug	<0.16 mg/m3	<0.053 ppm
Pentanone (2-)		10/23/2023	31.8 L	1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	<0.050 mg/m3	<0.014 ppm
Tetrachloroethene		10/23/2023	31.8 L	3.5 ug	<3.5 ug	<3.5 ug	<3.5 ug	<0.11 mg/m3	<0.016 ppm



Final Report

Toluene	10/23/2023	31.8 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.053 mg/m3	<0.014 ppm
Total VOC as hexane	10/23/2023	31.8 L	1.3 ug	<1.3 ug	<1.3 ug	<1.3 ug	<0.041 mg/m3	<0.012 ppm
Trichloroethene	10/23/2023	31.8 L	2.9 ug	<2.9 ug	<2.9 ug	<2.9 ug	<0.091 mg/m3	<0.017 ppm
Trimethylbenzenes (isomers)	10/23/2023	31.8 L	1.8 ug	<1.8 ug	<1.8 ug	<1.8 ug	<0.057 mg/m3	<0.012 ppm
Xylene (total)	10/23/2023	31.8 L	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	<0.053 mg/m3	<0.012 ppm
n-Hexane	10/23/2023	31.8 L	1.3 ug	<1.3 ug	<1.3 ug	<1.3 ug	<0.041 mg/m3	<0.012 ppm

Abbreviations:

mg = milligrams
ug = micrograms

ppm or ppmv = parts per million
ppb or ppbv = parts per billion

/m3 = per cubic meter
ng = nanograms

< Less Than. The analyte, if present, is at a level too low to be accurately quantitated by the method used

Displayed values on report have been rounded to 2 significant figures. Please contact the laboratory if you have any questions regarding our result calculation or rounding. All samples were received by the laboratory in acceptable condition unless otherwise noted.

The results in this report apply only to the samples, specifically listed above, and tested at the Wisconsin Occupational Health Laboratory

This report is not to be reproduced except in its entirety

End of Analytical Report

WISCONSIN OCCUPATIONAL HEALTH LABORATORY (WOHL) SAMPLE SUBMISSION FORM

Bill To: ACM Eng. & Env. Services

26598 US 20 West

South Bend, IN 46628

WOHL COMP# 7732

Phone # (574) 234-8435

FAX # (574) 234-6800

Email Address

erin@acnenvy.com

Date Sampled: 10-4-23

Project: The Learning Lab

P.O. # _____

Turnaround: RUSH PRIORITY NORMAL
 { must be prearranged }

PLEASE GROUP SAMPLES BY MEDIA USED AND ANALYSIS REQUESTED.

SPECIAL INSTRUCTIONS: Please email completed sample submission form.

LAB USE ONLY WOHL SAMPLE #	CUSTOMER FIELD #	SAMPLE MEDIA	WIPE SAMPLES			FOR AIR SAMPLES ONLY			ANALYSIS REQUEST
			SIZE OF AREA WIPED EX: 2 IN X 2 IN	TIME ON	TIME OFF	TOTAL TIME (MINS)	FLOW RATE (L/MIN)	VOLUME (LITERS)	
10/17/23 12:23 TLL-VOC01	TLL-ND01	Media #15		9:33	4:06	393	2.0	786.0	Nuisance Dust Concentration
	TLL-ND02	Media #15		9:34	3:47	373	2.0	746.0	Nuisance Dust Concentration
	TLL-VOC01	Media #1		9:42	1:19	217	0.2	43.4	Solvent Scan A
	TLL-VOC02	Media #1		1:27	4:06	159	0.2	31.8	Solvent Scan A
10/17/23 12:23 TLL-VOC02									
706507002									

CHAIN OF CUSTODY: Relinquished

UPS, Fed-Ex & Other Shippers

Wisconsin Occupational Health Lab

2601 Agriculture Drive
Madison, WI 53718

Erin Dempsey

US Postal Service

Wisconsin Occupational Health Lab

PO Box 7996
Madison, WI 53707-7996

Date 10-16-23

Phone 608 224-6210

800 446-0403

FAX 608 224-6213

Received

[Signature]

Sampling Questions

WOHLsampling@mail.slh.wisc.edu

Web Page/Order Media

http://www.slh.wisc.edu/wohl

SAMPLE CONDITION

OK

NOT OK

See Sample Receipt Record

10/17/23 12:23
7732



706507

RECD OCT 17 2023



**Wisconsin Occupational
Health Laboratory**

WISCONSIN STATE LABORATORY OF HYGIENE
UNIVERSITY OF WISCONSIN-MADISON

2601 Agriculture Drive
Madison, WI 53718
Phone: (800) 446-0403
Web: wohl-lab.org
AIHA LAP, LLC Laboratory ID: LAP-101070

ERIN DEMPSEY
ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, IN 46628

Lab Workorder ID 706499
Visit/Project ID VCSC
PO
Received October 17, 2023
Reported October 27, 2023
Report ID 11337013

Previous Report IDs

Dear ERIN DEMPSEY:

Enclosed are the analytical results for sample(s) received by the laboratory on October 17, 2023. All samples/specimens received by the laboratory were acceptable for testing. Sample results were not blank corrected, and all quality control met laboratory standards unless otherwise noted in the report narrative. All results apply to the samples as received and reported concentrations were calculated with information supplied by the sample submitter.

Please contact the lab if you have any questions concerning this report.

Sincerely,

Steve Strebel, Laboratory Director

Analyst - PATRICK RILEY



Final Report

Lab ID: 706499001	Sample ID: VIGO2023-VOCBLANK	Media: Charcoal tube, small
Sampling Date: 10/3/2023	Matrix: Air	Sampled Time:

Analyte	Method	Analysis Date	Air Volume	Reporting Limit	RESULTS				
					Front	Rear	Total	Air Concentration	TWA
4-tert-Butyltoluene	NIOSH 1500/1501 and OSHA 5000	10/22/2023		5.0 ug	<5.0 ug	<5.0 ug	<5.0 ug	n/a	n/a
Acetone		10/22/2023		1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	n/a	n/a
Benzene		10/22/2023		1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	n/a	n/a
Bromopropane (1-)		10/22/2023		2.7 ug	<2.7 ug	<2.7 ug	<2.7 ug	n/a	n/a
Butyl Acetate (n-)		10/22/2023		1.8 ug	<1.8 ug	<1.8 ug	<1.8 ug	n/a	n/a
Chlorobenzotrifluoride (4-)		10/22/2023		5.4 ug	<5.4 ug	<5.4 ug	<5.4 ug	n/a	n/a
Cyclohexane		10/22/2023		2.5 ug	<2.5 ug	<2.5 ug	<2.5 ug	n/a	n/a
Cyclohexanone		10/22/2023		4.0 ug	<4.0 ug	<4.0 ug	<4.0 ug	n/a	n/a
Diisobutyl Ketone		10/22/2023		3.2 ug	<3.2 ug	<3.2 ug	<3.2 ug	n/a	n/a
Ethanol		10/22/2023		100 ug	<100 ug	<100 ug	<100 ug	n/a	n/a
Ethyl Benzene		10/22/2023		1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	n/a	n/a
Ethyl acetate		10/22/2023		1.8 ug	<1.8 ug	<1.8 ug	<1.8 ug	n/a	n/a
Isopropyl Alcohol		10/22/2023		100 ug	<100 ug	<100 ug	<100 ug	n/a	n/a
Isopropylbenzene (Cumene)		10/22/2023		1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	n/a	n/a
Limonene		10/22/2023		1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	n/a	n/a
Methyl Amyl Ketone (n-)		10/22/2023		1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	n/a	n/a
Methyl Ethyl Ketone (MEK)		10/22/2023		1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	n/a	n/a
Methyl isobutyl ketone		10/22/2023		1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	n/a	n/a
Methylene chloride		10/22/2023		5.3 ug	<5.3 ug	<5.3 ug	<5.3 ug	n/a	n/a
Pentane		10/22/2023		5.0 ug	<5.0 ug	<5.0 ug	<5.0 ug	n/a	n/a
Pentanone (2-)		10/22/2023		1.6 ug	<1.6 ug	<1.6 ug	<1.6 ug	n/a	n/a
Tetrachloroethene		10/22/2023		3.5 ug	<3.5 ug	<3.5 ug	<3.5 ug	n/a	n/a
Toluene		10/22/2023		1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	n/a	n/a
Total VOC as hexane		10/22/2023		1.3 ug	<1.3 ug	<1.3 ug	<1.3 ug	n/a	n/a
Trichloroethene		10/22/2023		2.9 ug	<2.9 ug	<2.9 ug	<2.9 ug	n/a	n/a



Final Report

Trimethylbenzenes (isomers)	10/22/2023	1.8 ug	<1.8 ug	<1.8 ug	<1.8 ug	n/a	n/a
Xylene (total)	10/22/2023	1.7 ug	<1.7 ug	<1.7 ug	<1.7 ug	n/a	n/a
n-Hexane	10/22/2023	1.3 ug	<1.3 ug	<1.3 ug	<1.3 ug	n/a	n/a

Abbreviations:

mg = milligrams ppm or ppmv = parts per million /m3 = per cubic meter
 ug = micrograms ppb or ppbv = parts per billion ng = nanograms
 < Less Than. The analyte, if present, is at a level too low to be accurately quantitated by the method used

Displayed values on report have been rounded to 2 significant figures. Please contact the laboratory if you have any questions regarding our result calculation or rounding. All samples were received by the laboratory in acceptable condition unless otherwise noted.

The results in this report apply only to the samples, specifically listed above, and tested at the Wisconsin Occupational Health Laboratory

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End of Analytical Report

WISCONSIN OCCUPATIONAL HEALTH LABORATORY (WOHL) SAMPLE SUBMISSION FORM

Bill To: ACM Eng. & Env. Services
 26598 US 20 West
 South Bend, IN 46628

WOHL COMP# 7732
 Phone # (574) 234-8435

FAX # (574) 234-6800

Email Address

erin@acmenv.com

Project: VCSC
 P.O. # _____

Date Sampled: 10-3-23

Turnaround: RUSH PRIORITY NORMAL
 { must be prearranged }


Send Results To ATTN: Erin Dempsey

SPECIAL INSTRUCTIONS: Please email completed sample submission form.

10/17/23 12:19
 7732

 706499

PLEASE GROUP SAMPLES BY MEDIA USED AND ANALYSIS REQUESTED. ♦

LAB USE ONLY WOHL SAMPLE #	CUSTOMER FIELD #	SAMPLE MEDIA	WIPE SAMPLES		FOR AIR SAMPLES ONLY			ANALYSIS REQUEST
			SIZE OF AREA WIPED EX: 2 IN x 2 IN	TIME ON	TIME OFF	TOTAL TIME (MINS)	FLOW RATE (L/MIN)	
	Vigo2023-NDBLANK	Media #15						Nuisance Dust Concentration
	Vigo2023-VOCBLANK	Media #1						Solvent Scan A
10/17/23 12:19 VIG02023-VOCBLANK  706499001								

CHAIN OF CUSTODY: Relinquished
 UPS, Fed-Ex & Other Shippers
 Wisconsin Occupational Health Lab
 2601 Agriculture Drive
 Madison, WI 53718

Erin Dempsey
 Erin Dempsey
 US Postal Service
 Wisconsin Occupational Health Lab
 PO Box 7996
 Madison, WI 53707-7996

Date 10-16-23
 Phone 608 224-6210
 800 446-0403
 FAX 608 224-6213

Received *[Signature]*
 Sampling Questions
 WOHL.sampling@mail.slh.wisc.edu
 Web Page/Order Media
 http://www.slh.wisc.edu/wohl

REC'D OCT 17 2023
 SAMPLE CONDITION
 OK
 NOT OK
 See Sample Receipt Record



AIHA Laboratory Accreditation Programs, LLC
acknowledges that
Wisconsin Occupational Health Laboratory
2601 Agriculture Drive, Madison, WI 53718
Laboratory ID: LAP-101070

along with all premises from which key activities are performed, as listed above, has fulfilled the requirements of the AIHA Laboratory Accreditation Programs (AIHA LAP), LLC accreditation to the ISO/IEC 17025:2017 international standard, General Requirements for the Competence of Testing and Calibration Laboratories in the following:

LABORATORY ACCREDITATION PROGRAMS

- | | | |
|-------------------------------------|-----------------------------------|--|
| <input checked="" type="checkbox"/> | INDUSTRIAL HYGIENE | Accreditation Expires: August 01, 2024 |
| <input checked="" type="checkbox"/> | ENVIRONMENTAL LEAD | Accreditation Expires: August 01, 2024 |
| <input checked="" type="checkbox"/> | ENVIRONMENTAL MICROBIOLOGY | Accreditation Expires: August 01, 2024 |
| <input type="checkbox"/> | FOOD | Accreditation Expires: |
| <input type="checkbox"/> | UNIQUE SCOPES | Accreditation Expires: |

Specific Field(s) of Testing (FoT)/Method(s) within each Accreditation Program for which the above named laboratory maintains accreditation is outlined on the attached Scope of Accreditation. Continued accreditation is contingent upon successful on-going compliance with ISO/IEC 17025:2017 and AIHA LAP, LLC requirements. This certificate is not valid without the attached Scope of Accreditation. Please review the AIHA LAP, LLC website (www.aihaaccreditedlabs.org) for the most current Scope.

A handwritten signature in cursive script that reads 'Cheryl O. Morton'.

Cheryl O Morton
Managing Director, AIHA Laboratory Accreditation Programs, LLC



AIHA Laboratory Accreditation Programs, LLC

SCOPE OF ACCREDITATION

**Wisconsin Occupational Health
Laboratory**

2601 Agriculture Drive, Madison, WI 53718

Laboratory ID: LAP-101070

Issue Date: 08/01/2022

The laboratory is approved for those specific field(s) of testing/methods listed in the table below. Clients are urged to verify the laboratory's current accreditation status for the particular field(s) of testing/Methods, since these can change due to proficiency status, suspension and/or withdrawal of accreditation.

Industrial Hygiene Laboratory Accreditation Program (IHLAP)

Initial Accreditation Date: 05/01/1982

IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
Asbestos/Fiber Microscopy Core	Phase Contrast Microscopy (PCM)	-	NIOSH 7400	Asbestos/Fibers
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)	-	EPA 600/M4-82-020	Asbestos & Other Fibers in Bulk
Asbestos/Fiber Microscopy Core	Polarized Light Microscopy (PLM)	-	EPA 600/R-93/116	Asbestos & Other Fibers in Bulk
Chromatography Core	Gas Chromatography	GC/ECD	EPA 8081	Organochlorine Pesticides
Chromatography Core	Gas Chromatography	GC/ECD	EPA 8081B	Organochlorine Pesticides
Chromatography Core	Gas Chromatography	GC/ECD	NIOSH 1010	Epichlorohydrin
Chromatography Core	Gas Chromatography	GC/ECD	OSHA 1012	Acetoin, Diacetyl
Chromatography Core	Gas Chromatography	GC/ECD	OSHA 1016 Modified	2,3-Pentanedione
Chromatography Core	Gas Chromatography	GC/ECD	OSHA 112	Chloroprene
Chromatography Core	Gas Chromatography	GC/ECD	OSHA 57	4,4-Methylenedianiline (MDA)
Chromatography Core	Gas Chromatography	GC/ECD	OSHA 62 Modified	Aldrin, Bifenthrin, Captan, Chlorethoxyfos, Chlorothalonil, Chlorpyrifos, Cyfluthrin, Deltamethrin, Diazinon, Dichlorvos, Dieldrin, Dimethoate, Endrin, Esfenvalerate, Ethyl parathion, Fipronil, Heptachlor epoxide, Imidacloprid, Malathion, Metrofluthrin, Metribuzin, Pendimethalin, Permethrin,

Effective: 06/07/2022

Revision: 9.2

Page 1 of 12



AIHA LAP™

IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
				Propiconazole, Pyrethrum, Tefluthrin, Thiamethoxam, Trifluralin, gamma-BHC, lambda-Cyhalothrin, p,p-DDD, p,p-DDE, p,p-DDT pesticides
Chromatography Core	Gas Chromatography	GC/ECD	OSHA 65	Benzidine; 3,3-Dichlorobenzidine
Chromatography Core	Gas Chromatography	GC/ECD	OSHA 67	Aldrin, Bifenthrin, Captan, Chlorethoxyfos, Chlorothalonil, Chlorpyrifos, Cyfluthrin, Deltamethrin, Diazinon, Dichlorvos, Dieldrin, Dimethoate, Endrin, Esfenvalerate, Ethyl parathion, Fipronil, Heptachlor epoxide, Imidacloprid, Malathion, Metrofluthrin, Metribuzin, Pendimethalin, Permethrin, Propiconazole, Pyrethrum, Tefluthrin, Thiamethoxam, Trifluralin, gamma-BHC, lambda-Cyhalothrin, p,p-DDD, p,p-DDE, p,p-DDT pesticides
Chromatography Core	Gas Chromatography	GC/ECD	OSHA 70	Aldrin, Bifenthrin, Captan, Chlorethoxyfos, Chlorothalonil, Chlorpyrifos, Cyfluthrin, Deltamethrin, Diazinon, Dichlorvos, Dieldrin, Dimethoate, Endrin, Esfenvalerate, Ethyl parathion, Fipronil, Heptachlor epoxide, Imidacloprid, Malathion, Metrofluthrin, Metribuzin, Pendimethalin, Permethrin, Propiconazole, Pyrethrum, Tefluthrin, Thiamethoxam, Trifluralin, gamma-BHC, lambda-Cyhalothrin, p,p-DDD, p,p-DDE, p,p-DDT pesticides
Chromatography Core	Gas Chromatography	GC/ECD	OSHA 71	MOCA
Chromatography Core	Gas Chromatography	GC/ECD	OSHA 73	o-Toluidine
Chromatography Core	Gas Chromatography	GC/ECD	OSHA PV2055	Triglycidyl isocyanurate
Chromatography Core	Gas Chromatography	GC/ECD	OSHA PV2088	Aroclors-1016, 1221, 1232, 1242, 1248, 1254
Chromatography Core	Gas Chromatography	GC/ECD	OSHA PV2089	Chlorodiphenyl
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1018	Dichlorodifluoromethane
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1019	1,1,2,2-Tetrachloroethane

IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1300	Acetone, Benzene, Bromopropane (1-), n-Butyl acetate, 4-tert-Butyltoluene, 4-Chlorobenzotrifluoride, Cyclohexane, Diisobutyl ketone, Ethanol, Ethyl benzene, Ethyl acetate, Isopropyl alcohol, Isopropylbenzene, Limonene, n-Methyl amyl ketone, Methyl ethyl ketone, Methyl isobutyl ketone, Methyene chloride, Pentane, 2-Pentanone, Styrene, Tetrachloroethane, Toluene, TVOC as hexane, Trichloroethane, Trimethylbenzenes, Xylene (total), n-Hexane, General solvents
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1301	Camphor
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1302	n-Methyl-2-pyrrolidinone
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1400	n-Butyl alcohol, s-Butyl alcohol, t-Butanol, Cyclohexanol, Ethyl alcohol, 2-Ethyl hexanol, Isobutyl alcohol, Isopropyl alcohol, Methyl alcohol, Propyl alcohol, Terpeneol-alpha
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1402	2-Ethyl hexanol, Methyl isobutyl carbinol
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1403	2-Butoxyethanol, Butyl carbitol, Butyl cellosolve acetate, Diethyl carbitol Dimethyl adipate, Dimethyl glutarate, Dimethyl succinate, Dipropylene glycol methyl ether, 2-Ethoxyethanol, Ethyl-2-pyrrolidinone, 1-Methyl-2-pyrrolidinone, n-Propoxy propanol, 2-Propoxyethanol, Propylene glycol ethyl ether, Propylene glycol methyl ether, Propylene glycol methyl ether acetate, general glycol ethers
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1453	Vinyl Acetate
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1500	Acetone, Benzene, Bromopropane (1-), n-Butyl acetate, 4-tert-Butyltoluene, 4-Chlorobenzotrifluoride,



IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
				Cyclohexane, Diisobutyl ketone, Ethanol, Ethyl benzene, Ethyl acetate, Isopropyl alcohol, Isopropylbenzene, Limonene, n-Methyl amyl ketone, Methyl ethyl ketone, Methyl isobutyl ketone, Methyene chloride, Pentane, 2-Pentanone, Styrene, Tetrachloroethane, Toluene, TVOC as hexane, Trichloroethane, Trimethylbenzenes, Xylene (total), n-Hexane, General solvents
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1501	Acetone, Benzene, Bromopropane (1-), n-Butyl acetate, 4-tert-Butyltoluene, 4-Chlorobenzotrifluoride, Cyclohexane, Diisobutyl ketone, Ethanol, Ethyl benzene, Ethyl acetate, Isopropyl alcohol, Isopropylbenzene, Limonene, n-Methyl amyl ketone, Methyl ethyl ketone, Methyl isobutyl ketone, Methyene chloride, Pentane, 2-Pentanone, Styrene, Tetrachloroethane, Toluene, TVOC as hexane, Trichloroethane, Trimethylbenzenes, Xylene (total), n-Hexane, General solvents
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 1616	n-Butyl glycidyl ether
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2000	Methyl alcohol, Ethyl alcohol, Isopropyl alcohol
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2002 Modified	Aniline
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2004	Dimethyl acetamide
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2005	Nitrobenzene, Nitrotoluene
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2012	n-Butylamine
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2505	Furfuryl alcohol
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2508	Isophorone
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2526	Nitroethane
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2530	Diphenyl
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2537	Methyl methacrylate, Ethyl methacrylate



IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2545	Allyl glycidyl ether
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 2554	Glycol Ethers
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 5034 Modified	Tributyl phosphate, Triphenyl phosphate
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 5038 Modified	Tributyl phosphate, Triphenyl phosphate
Chromatography Core	Gas Chromatography	GC/FID	NIOSH 5523	Glycols - Diethylene, Triethylene, Propylene, Ethylene, Dipropylene
Chromatography Core	Gas Chromatography	GC/FID	NIOSH S264	Ethyl silicate
Chromatography Core	Gas Chromatography	GC/FID	OSHA 01	Cyclohexanone
Chromatography Core	Gas Chromatography	GC/FID	OSHA 101	Dipropylene Glycol Methyl Ether
Chromatography Core	Gas Chromatography	GC/FID	OSHA 1024	Triglycidyl isocyanurate
Chromatography Core	Gas Chromatography	GC/FID	OSHA 103	Isoflurane, Desflurane, Sevoflurane, Enflurane, Halothane
Chromatography Core	Gas Chromatography	GC/FID	OSHA 104	Phthalates - Dimethyl, Diethyl, Dibutyl, Butyl benzyl, Diisobutyl, Diisodecyl, Diisononyl, Di-n-hexyl, Diethyl hexyl, Di-n-octyl, Diundecyl
Chromatography Core	Gas Chromatography	GC/FID	OSHA 106	Desflurane
Chromatography Core	Gas Chromatography	GC/FID	OSHA 35	Naphthalene
Chromatography Core	Gas Chromatography	GC/FID	OSHA 37 Modified	Acrylonitrile
Chromatography Core	Gas Chromatography	GC/FID	OSHA 46	1-Nitropropane and 2-Nitropropane
Chromatography Core	Gas Chromatography	GC/FID	OSHA 5001	Organic Vapors
Chromatography Core	Gas Chromatography	GC/FID	OSHA 53	2-Methoxyethanol (Methyl Cellosolve, 2ME), 2-Methoxyethyl Acetate (Methyl Cellosolve Acetate, 2MEA), 2-Ethoxyethanol (Cellosolve, 2EE), 2-Ethoxyethyl Acetate (Cellosolve Acetate, 2EEA)
Chromatography Core	Gas Chromatography	GC/FID	OSHA 56	1,3-Butadiene
Chromatography Core	Gas Chromatography	GC/FID	OSHA 66	N,N-Dimethylformamide
Chromatography Core	Gas Chromatography	GC/FID	OSHA 69	Acetone
Chromatography Core	Gas Chromatography	GC/FID	OSHA 72	Furfural
Chromatography Core	Gas Chromatography	GC/FID	OSHA 75	Vinyl Chloride
Chromatography Core	Gas Chromatography	GC/FID	OSHA 80	Methylene Chloride
Chromatography Core	Gas Chromatography	GC/FID	OSHA 83	2-Butoxyethanol, 2-Butoxyethyl acetate



IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
Chromatography Core	Gas Chromatography	GC/FID	OSHA 89	Styrene
Chromatography Core	Gas Chromatography	GC/FID	OSHA 92	Ethyl acrylate, Methyl acrylate, Butyl acrylate, 2-Ethyl hexyl acrylate
Chromatography Core	Gas Chromatography	GC/FID	OSHA 94	Methyl methacrylate, Ethyl methacrylate
Chromatography Core	Gas Chromatography	GC/FID	OSHA 99	Propylene glycol Monomethyl ethers/acetates: 1-Methoxy-2-propanol, 2-Methoxy-1-propanol, 1-Methoxy-2-propyl acetate, 2-Methoxy-1-propyl acetate
Chromatography Core	Gas Chromatography	GC/FID	OSHA ID-172 Modified	Carbon Dioxide
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2003	Acetophenone
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2009	Benzyl Alcohol
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2013	Carbitol, Carbitol acetate
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2014	Catechol
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2016	Cyclohexylamine
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2019	Dimethyl adipate
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2020	Dimethyl glutarate
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2021	Dimethyl succinate
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2022	Biphenyl, Diphenyl ether
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2024	Ethylene glycol
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2047	Paraffin
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2048 Modified	Phenothiazine
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2053	Resorcinol
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2060	Morpholine
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2064	N,N-dimethylaniline
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2080	Butyl lactate
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2081	Ethyl Lactate
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2095	Butyl carbitol
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2101	Hexylene glycol
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2108	Di-tert-butyl-p-cresol
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2123	Morpholine
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2130	Benzophenone
Chromatography Core	Gas Chromatography	GC/FID	OSHA PV2133	1,6-Hexanediol diacrylate



IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
Chromatography Core	Gas Chromatography	GC/FID	WG099	In House: Bis(2-Dimethylaminoethyl) ether
Chromatography Core	Gas Chromatography	GC/FID	WG128	In House: Polycat 5
Chromatography Core	Gas Chromatography	GC/FID	WG145	Propargyl Alcohol
Chromatography Core	Gas Chromatography	GC/FID	WG180	In House: Triethylene diamine
Chromatography Core	Gas Chromatography	GC/FID	WG188	Rhone-Poulenc for methyl Salicylate
Chromatography Core	Gas Chromatography	GC/NPD	NIOSH 2527 Modified	Nitromethane
Chromatography Core	Gas Chromatography	GC/NPD	NIOSH 2544	Nicotine
Chromatography Core	Gas Chromatography	GC/NPD	NIOSH 2551	Nicotine
Chromatography Core	Gas Chromatography	GC/NPD	OSHA 102	Acetic anhydride
Chromatography Core	Gas Chromatography	GC/NPD	OSHA 52	Formaldehyde, Acrolein, Acetaldehyde
Chromatography Core	Gas Chromatography	GC/NPD	OSHA 61	Phosgene
Chromatography Core	Gas Chromatography	GC/NPD	OSHA PV2004 Modified	Acrylamide
Chromatography Core	Gas Chromatography	GC/NPD	OSHA PV2084	Acetamide
Chromatography Core	Gas Chromatography	GC/TCD	OSHA ID-172	Carbon dioxide, Carbon monoxide, Nitrous oxide, Hydrogen
Chromatography Core	Gas Chromatography (Diffusive Samplers)	-	OSHA 1001	Acetone, Benzene, Bromopropane (1-), n-Butyl acetate, 4-tert-Butyltoluene, 4-Chlorobenzotrifluoride, Cyclohexane, Diisobutyl ketone, Ethyl benzene, Ethyl acetate, Isopropylbenzene, Limonene, n-Methyl amyl ketone, Methyl ethyl ketone, Methyl isobutyl ketone, Methyl methacrylate, Methyene chloride, Pentane, 2-Pentanone, Styrene, Tetrachloroethane, Toluene, TVOC as hexane, Trichloroethane, Trimethylbenzenes, Xylene (total), n-Hexane
Chromatography Core	Gas Chromatography (Diffusive Samplers)	-	OSHA 1002	Acetone, Benzene, Bromopropane (1-), n-Butyl acetate, 4-tert-Butyltoluene, 4-Chlorobenzotrifluoride, Cyclohexane, Diisobutyl ketone, Ethyl benzene, Ethyl acetate, Isopropylbenzene, Limonene, n-Methyl amyl ketone, Methyl



IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
				ethyl ketone, Methyl isobutyl ketone, Methyl methacrylate, Methyene chloride, Pentane, 2-Pentanone, Styrene, Tetrachloroethane, Toluene, TVOC as hexane, Trichloroethane, Trimethylbenzenes, Xylene (total), n-Hexane
Chromatography Core	Gas Chromatography (Diffusive Samplers)	-	OSHA 1004	Acetone, Benzene, Bromopropane (1-), n-Butyl acetate, 4-tert-Butyltoluene, 4-Chlorobenzotrifluoride, Cyclohexane, Diisobutyl ketone, Ethyl benzene, Ethyl acetate, Isopropylbenzene, Limonene, n-Methyl amyl ketone, Methyl ethyl ketone, Methyl isobutyl ketone, Methyl methacrylate, Methyene chloride, Pentane, 2-Pentanone, Styrene, Tetrachloroethane, Toluene, TVOC as hexane, Trichloroethane, Trimethylbenzenes, Xylene (total), n-Hexane
Chromatography Core	Gas Chromatography (Diffusive Samplers)	-	OSHA 1005	Acetone, Benzene, Bromopropane (1-), n-Butyl acetate, 4-tert-Butyltoluene, 4-Chlorobenzotrifluoride, Cyclohexane, Diisobutyl ketone, Ethyl benzene, Ethyl acetate, Isopropylbenzene, Limonene, n-Methyl amyl ketone, Methyl ethyl ketone, Methyl isobutyl ketone, Methyl methacrylate, Methyene chloride, Pentane, 2-Pentanone, Styrene, Tetrachloroethane, Toluene, TVOC as hexane, Trichloroethane, Trimethylbenzenes, Xylene (total), n-Hexane
Chromatography Core	Gas Chromatography (Diffusive Samplers)	-	OSHA 111	Acetone, Benzene, Bromopropane (1-), n-Butyl acetate, 4-tert-Butyltoluene, 4-Chlorobenzotrifluoride, Cyclohexane, Diisobutyl ketone, Ethyl benzene, Ethyl acetate,



IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
				Isopropylbenzene, Limonene, n-Methyl amyl ketone, Methyl ethyl ketone, Methyl isobutyl ketone, Methyl methacrylate, Methyene chloride, Pentane, 2-Pentanone, Styrene, Tetrachloroethane, Toluene, TVOC as hexane, Trichloroethane, Trimethylbenzenes, Xylene (total), n-Hexane
Chromatography Core	Gas Chromatography (Diffusive Samplers)	-	WG059	General Solvents
Chromatography Core	Ion Chromatography (IC)	-	NIOSH 2011	Acetic, Formic, Propionic, Butyric, and Citric acids
Chromatography Core	Ion Chromatography (IC)	-	NIOSH 6004	Sulfur Dioxide on Filter or UMEEx 200 badge
Chromatography Core	Ion Chromatography (IC)	-	NIOSH 6011	Chlorine & Bromine
Chromatography Core	Ion Chromatography (IC)	-	NIOSH 6013	Hydrogen sulfide
Chromatography Core	Ion Chromatography (IC)	-	NIOSH 6017	Hydrogen Cyanide, Cyanide particulate
Chromatography Core	Ion Chromatography (IC)	-	NIOSH 6402 Modified	Phosphorus Trichloride
Chromatography Core	Ion Chromatography (IC)	-	OSHA 1011	Sulfur dioxide
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-111	Phosphoric acid
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-113	Sulfuric acid
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-165SG	Mineral Acids and corresponding anions
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-174SG	Mineral Acids and corresponding anions
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-182	Nitrogen Dioxide on Tube and UMEEx 200 badge
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-186SG	Acetic, Formic, Propionic, Butyric, and Citric acids
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-188	Ammonia
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-190	Nitric Oxide
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-202	Chlorine dioxide
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-211	Sodium azide and hydrazoic acid
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-214	Ozone
Chromatography Core	Ion Chromatography (IC)	-	OSHA ID-215 (Version 2)	Hexavalent Chromium
Chromatography Core	Ion Chromatography (IC)	-	OSHA PV2115	Oxalic acid
Chromatography Core	Ion Chromatography (IC)	-	OSHA PV2119	Acetic, Formic, Propionic, Butyric, and Citric acids
Chromatography Core	Ion Chromatography (IC)	-	WI020eth	Ethanolamine
Chromatography Core	Ion Chromatography (IC)	-	WI022ncl	Chloramine



IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
Chromatography Core	Ion Chromatography (IC)	-	WI025mw	Amines
Chromatography Core	Liquid Chromatography	HPLC/FL	NIOSH 5032	Pentamidine isethionate
Chromatography Core	Liquid Chromatography	HPLC/FL	NIOSH 5041	Capsaicin and Dihydrocapsaicin
Chromatography Core	Liquid Chromatography	HPLC/FL	OSHA 32 Modified	Phenol and Cresol
Chromatography Core	Liquid Chromatography	HPLC/FL	OSHA 5002	Isocyanates
Chromatography Core	Liquid Chromatography	HPLC/FL	OSHA 58	CTPV and PAH
Chromatography Core	Liquid Chromatography	HPLC/FL	OSHA PV2092	Isocyanates
Chromatography Core	Liquid Chromatography	HPLC/FL	OSHA W4002	Isocyanate wipes
Chromatography Core	Liquid Chromatography	HPLC/UV	EPA TO-11A	Formaldehyde and other Aldehydes and Ketones
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH 2016	Formaldehyde and other Aldehydes and Ketones
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH 2540	Ethylenediamine, Diethylenetriamine, Triethylenetetramine, Tetraethylenepentamine
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH 3512	Maleic acid
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH 5001	2,4-D; 2,4,5-T; Dicamba; MCPP; and MCPA
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH 5002	Warfarin
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH 5003	Paraquat
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH 5005	Thiram and Disulfiram
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH 5007	Rotenone
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH 5027 Modified	Ribavirin
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH 5043	p-Toluenesulfonic acid
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH 5509 Modified	Benzidine
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH P&CAM 304	o-Chlorobenzylidene malonitrile
Chromatography Core	Liquid Chromatography	HPLC/UV	NIOSH S228	Picric Acid
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 1007	Formaldehyde on UME _x 100
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 1018	Bisphenol A and Diglycidyl Ether of Bisphenol A
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 105	Xylene diamine
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 108	Hydrazine
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 2052	Resmethrin
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 32	Phenol and Cresol
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 39	Pentachlorophenol, pentabromophenol, and various other chlorinated phenolic compounds



IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 43	Nitroglycerin
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 55	Ethyl and Methyl cyanoacrylate
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 60	Amines in Air
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 63	Carbaryl
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 64	Glutaraldehyde
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 78	Diphenylamine
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 86	Maleic Anhydride
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 87	m-, o- and p-Phenylenediamine
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 90	Phthalic Anhydride
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 95	Ethylene Thiourea
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA 98	Trimellitic Anhydride
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA PV2001	Hormones
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA PV2005	Acrylic and Methacrylic acid
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA PV2007	Propoxur
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA PV2008	Bendiocarb (Ficam)
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA PV2012	Caprolactam
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA PV2067	Glyphosate
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA PV2094	Hydroquinone
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA PV2102	Apron
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA PV2110	Piperonyl butoxide
Chromatography Core	Liquid Chromatography	HPLC/UV	OSHA PV2111	Ethanolamine
Chromatography Core	Liquid Chromatography	HPLC/UV	WL017	Abietic Acid
Chromatography Core	Liquid Chromatography	HPLC/UV	WL035	In House: method for Cumene Hydroperoxide
Chromatography Core	Liquid Chromatography	HPLC/UV	WL074	In House: method for Melamine
Chromatography Core	Liquid Chromatography	HPLC/UV	WL082	Adipic Acid
Chromatography Core	Liquid Chromatography	HPLC/UV	WL087	Benzoic Acid
Chromatography Core	Liquid Chromatography	HPLC/UV	WL104	Atzazine
Chromatography Core	Liquid Chromatography	HPLC/UV	WL105	Simazine
Chromatography Core	Liquid Chromatography	HPLC/UV	WL115	Trimethylpropane triacrylate
Miscellaneous Core	Gravimetric	-	NIOSH 0500	Total Dust
Miscellaneous Core	Gravimetric	-	NIOSH 0501	Total Dust



IHLAP Scope Category	Field of Testing (FOT)	Technology sub-type/Detector	Published Reference Method/Title of In-house Method	Component, parameter or characteristic tested
Miscellaneous Core	Gravimetric	-	NIOSH 0600	Respirable Dust
Miscellaneous Core	Gravimetric	-	NIOSH 5023	CTPV
Miscellaneous Core	Gravimetric	-	NIOSH 5042	Asphalt fume
Miscellaneous Core	Gravimetric	-	NIOSH 5524	Metal working fluids and oil mist
Miscellaneous Core	Gravimetric	-	OSHA 58	CTPV
Miscellaneous Core	Gravimetric	-	OSHA ID-196	Carbon Black
Miscellaneous Core	Ion-selective electrode (ISE)	-	OSHA ID-110	Fluoride, HF, and other Fluoride compounds
Miscellaneous Core	Ion-selective electrode (ISE)	-	OSHA ID-115SG Modified	Perchloric acid
Miscellaneous Core	Ion-selective electrode (ISE)	-	OSHA ID-212	Iodine
Miscellaneous Core	Ion-selective electrode (ISE)	-	OSHA ID-216SG	Boron Trifluoride
Miscellaneous Core	Thermo-optical Analysis (TOA)	-	NIOSH 5040	Elemental Carbon, Organic Carbon, Total Carbon
Spectrometry Core	Atomic Absorption	CVAA	NIOSH 6009	Mercury
Spectrometry Core	Inductively-Coupled Plasma	ICP/AES	EPA 200.7	Metals
Spectrometry Core	Inductively-Coupled Plasma	ICP/AES	EPA SW-846 6010B	Metals
Spectrometry Core	Inductively-Coupled Plasma	ICP/AES	NIOSH 7303	Metals
Spectrometry Core	Inductively-Coupled Plasma	ICP/OES	EHD Metals Method 021	Sodium Polyacrylate
Spectrometry Core	Inductively-Coupled Plasma	ICP/OES	EHD Metals Method 400.2	Sodium Polyacrylate
Spectrometry Core	UV/VIS (Colorimetric)	-	NIOSH 3500	Formaldehyde
Spectrometry Core	UV/VIS (Colorimetric)	-	NIOSH 3508	Methyl Ethyl Ketone Peroxide
Spectrometry Core	UV/VIS (Colorimetric)	-	NIOSH P&CAM 263	Hexamethylenetetramine
Spectrometry Core	UV/VIS (Colorimetric)	-	OSHA 1019	Hydrogen Peroxide
Spectrometry Core	UV/VIS (Colorimetric)	-	OSHA 77	Methyl Ethyl Ketone Peroxide
Spectrometry Core	X-ray Diffraction (XRD)	-	NIOSH 7500	Respirable Crystalline Silica
Spectrometry Core	X-ray Diffraction (XRD)	-	OSHA ID-142 (Version 4)	Respirable Crystalline Silica

A complete listing of currently accredited IHLAP laboratories is available on the AIHA LAP, LLC website at: <http://www.aihaaccreditedlabs.org>



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IAQ ASSESSMENT REPORT

SECTION VII:

RECOMMENDATIONS

FOR:

**VIGO COUNTY SCHOOL CORPORATION
P.O. BOX 3703
TERRE HAUTE, INDIANA 47803**

LOCATION:

**THE LEARNING LAB
55 SOUTH BROWN AVENUE
TERRE HAUTE, INDIANA 47803**

PERFORMED BY:

**ACM ENGINEERING &
ENVIRONMENTAL SERVICES
26598 US 20 WEST
SOUTH BEND, INDIANA 46628**

DATE:

NOVEMBER 13, 2023



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SECTION VII: RECOMMENDATIONS

ACM Engineering & Environmental Services, upon review of all sampling analysis data and an evaluation of the existing physical conditions at the site, has developed and recommends that the following response actions to be implemented:

· General ·

- Maintain relative humidity levels within the school that conform to the ASHRAE guidelines of between 30.0% and 60.0% relative humidity at all times.
- Maintain temperature levels within the school that conform to the established ASHRAE Comfort Level Standard 55-2020 guidelines for winter and summer months when occupied.
- Consider having a Heating, Ventilation, and Air-Conditioning (HVAC) professional evaluate the HVAC system of the areas where concentrations of carbon dioxide exceeding 1,000 ppm were identified. Balance, airflow, etc. should be checked in an effort to keep levels of carbon dioxide within the rooms below 1,000 ppm at all times.
- Continue to maintain the present operational maintenance and cleaning procedures within the school relative to the items contained within this report.



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IAQ ASSESSMENT REPORT

SECTION VIII:

GLOSSARY OF TERMS

FOR:

**VIGO COUNTY SCHOOL CORPORATION
P.O. BOX 3703
TERRE HAUTE, INDIANA 47803**

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SECTION VIII: GLOSSARY OF TERMS

ACGIH: American Conference of Governmental Industrial Hygienists.

Air-O-Cell: An air cassette utilized for profiling fungal population in air, using a spore trap technique.

Air Sample Culturable: A type of air analysis whereby a specific volume of air is accelerated into a selected growth media in a Petri dish to allow for any microorganisms in the air to be cultured and identified. This sampling process is performed using an Anderson N-6 Single Stage Sampler. This method takes 10 days to culture.

Air Sample Optical Analysis: A type of air analysis whereby a specific volume of air is accelerated into a collection cassette to allow for any microorganisms in the air to be identified, measuring viable and non-viable microorganisms. This sampling process is performed using calibrated pumps and Air-O-Cell cassettes.

AHU: Air Handling Unit.

Allergen: Substance (such as mold) that can cause an allergic reaction.

Amplification: A strengthening of the growth of fungi, due to elevated moisture levels or a constant water source, to greater than 1,000,000 CFU per square inch.

Andersen sampler: Equipment used for profiling fungal or bacterial populations in air, utilizing air impaction onto agar plates. Culturing methods then identifies fungal genera and species.

Antimicrobial: Fungicide or biocide used to control, prevent, and remediate microbial growth in many different applications.

APR: Air Purifying Respirator.

ASHRAE: American Society of Heating, Refrigeration and Air-Conditioning Engineers.

Aspergillus: A genus of fungi containing approximately 150 recognized species. All of the species contained in this genus should be considered allergenic. Toxin production is dependent on the species or strain within a species and on the food source for the fungus. Several toxins are considered potential human carcinogens.

Basic Analysis Single Plate: The collected samples are introduced into only one selected growth media in a Petri dish to allow for any microorganisms to be cultured and identified.



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Basic Analysis Dual Plate: The collected samples are introduced into two different selected growth media in two separate Petri dishes to allow for a more thorough and comprehensive identification of any microorganisms in the field sample.

Biocide: Substance or chemical that kills microorganisms such as mold.

Building-related illness: A specific illness with a known cause that is a result of exposure to an indoor agent. Examples are Legionnaire's disease and Pontiac fever.

Bulk Sample: A physical piece of material to be cultured and identified in a selected growth medium for microorganism identification.

CFU: Colony Forming Units-A measurement of the total fungi concentration usually expressed as CFU per unit area.

Culturable Fungi: Fungi that are capable of growth and reproduction.

EPA: Environmental Protection Agency.

Elevated Level Regarding Airborne Fungal (Mold) Spores: Comparison to a base reference or standard and the quantity measured is higher than the base reference or standard. Generally the outside ambient fungal air sample is the base reference or standard.

Elevated Level Regarding Moisture Content of Building Materials: Comparison of the moisture content level of a given building material and the quantity measured is higher than the minimum moisture content level of the same building material necessary to promote and/or sustain mold growth. The following are the minimum moisture content levels necessary to support mold growth in a given building material: Drywall: 1.0%, Wood: 17.0%, Plaster and/or Concrete: 95.0%

Enumeration: The methodology of quantifying identified growth in cultured samples.

Full Speciation: A cultured sample is identified to the full species level, as opposed to the identification only to the genus level. An example of full Speciation would be the identification of *Aspergillus versicolor* instead of only *Aspergillus*.

Fungal Structures: Airborne mold spores, including dissected viable and non-viable fragments, which have been collected on a slide (usually via Air-O-Cell cassettes).

Fungi: Fungi are neither animals nor plants, and are classified in a kingdom of their own. Fungi include molds, yeasts, mushrooms and puffballs. It is estimated that over 1.5 million species of fungi exist.



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Fungicide: Substance or chemical that kills fungi.

GC: Gas Chromatography.

Health: A state of complete physical, mental and social well being, and not merely the absence of disease or infirmity.

HEPA: High-Efficiency Particulate Air.

HEPA filter: A filter capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 micrometers in diameter or larger.

HVAC: Heating, Ventilation and Air Conditioning.

Hypersensitivity: Great or excessive sensitivity.

IAQ: Indoor Air Quality.

Indoor air quality: The physical, chemical and biological characteristics of indoor air that can affect the comfort or health of the occupants.

Moisture activity: A level of water or moisture present in any material. Moisture activity occurs from water damage, water movement or the intrusion of water through any material, e.g., ceiling tile, drywall, concrete, etc.

Mold: Molds are a group of organisms that belong to the kingdom Fungi. There are over 20,000 species of mold. Molds reproduce by making spores that continually waft through indoor and outdoor air. When spores land on a damp spot they may begin growing and digesting the material on which they have landed. Molds can grow on virtually any organic substance, providing moisture and oxygen are present.

MS: Mass Spectrometry.

MVOC: Microbial Volatile Organic Compound, a chemical made by a mold that may have a moldy or musty odor.

Mycotoxins: A toxin produced by a fungus or mold.

OSHA: Occupational Safety and Health Administration.

PAPR: Powered Air Purifying Respirator.

PCBs: Polychlorinated Biphenyls.



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PID: Photo-ionization Detector.

PPE: Personal Protective Equipment.

RSP: Respirable Suspended Particulates.

SBS: Sick Building Syndrome.

Sensitization: Repeated or single exposure to an allergen that results in the exposed individual becoming hypersensitive to the allergens.

Sick building syndrome: A set of health symptoms related to chemical, particulate or biological exposure that cannot be related to a specific cause but are alleviated when the occupant leaves the building. Some of the symptoms range from headaches, nausea, fatigue and drowsiness, to eye, nose and throat irritation.

Spore: Molds reproduce by means of spores. Spores are microscopic and vary in shape and size (2-100 micrometers). Spores may travel in several ways—they may be passively moved (by a breeze or waterdrop), mechanically distributed (by a person passing or the HVAC system) or actively discharged by the mold (usually under moist or high humidity conditions).

Stressors: Environmental parameters, such as lighting, noise, vibration, ergonomics, overcrowding and other psychosocial issues that may affect a person's perception and satisfaction of building environment and indoor air quality.

Tape lift sample: A direct sampling of visible fungal growth for presumptive identification of fungal structures utilizing optical analytical methods.

Thermal comfort: A state of mind in which a person feels satisfaction with the environment. The factors affecting thermal comfort are air temperature, mean radiant temperature, stratification, air motion, relative humidity, activity level and clothing.

TLV: Threshold Limit Value.

TVOC: Total Volatile Organic Compounds.

Ventilation rate/Fresh air: The amount of outside air that is supplied to the interior space.

VOC: Volatile Organic Compound.

Wipe Sample: The sampling of a specific area of surface by being wiped or swabbed, using tools and methods specifically designed to safely and accurately test surfaces. The sample collected is introduced into selected growth media in a Petri dish to allow for any microorganisms to be cultured and identified. This method takes 10 days to culture.



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Sample Result Levels

Bulk, dust, wipe, or water samples for culturable bacteria or fungi:

- Greater than 10 million CFU/g (or in² or ml) is very high.
- One to 10 million CFU/g (or in² or ml) is high.
- 100,000 to <1 million CFU/g (or in² or ml) is moderate.
- 5,000 to <100,000 CFU/g (or in² or ml) low moderate.
- Below 5,000 CFU/g (or in² or ml) is low.

Air samples for culturable fungi:

- **The data should not be used for health evaluation criteria**
- Concentrations over 1000 CFU/m³ may suggest possible indoor sources of fungi or poor filtration in the HVAC system.
- Concentrations lower than 1000 CFU/m³ do not indicate a “healthy environment”.

Air-O-Cell cassette spore traps:

- Evaluation can be interpreted by comparison means only.
- No industry standard concentration categorization levels have been established.

Units

µm	Micrometer (micron)
CFU	Colony-forming units
g	Gram
l	Liter
m	Meter
m ³	Cubic meter
min	Minute
ppb	Parts per billion
ppm	Parts per million
s	Second



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IAQ ASSESSMENT REPORT

SECTION IX:

CLOSING STATEMENT

FOR:

**VIGO COUNTY SCHOOL CORPORATION
P.O. BOX 3703
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SECTION IX: CLOSING STATEMENT

The environmental recommendations and conclusions of this report are based upon conditions, observations, and the information available at the time the report was developed.

ACM Engineering & Environmental Services has provided a professional evaluation of the data generated through on-site inspections of the area.

This report does not list all possible hazards (e.g., asbestos, lead paint, etc.), nor indicate that other hazards do not exist. Observations, findings, results, and the summary are limited to those aspects apparent at the time of the evaluation. This report is not to be construed to be all-inclusive, nor casing every possible situation.

Data review and recommendations are advisory and designed to assist management. It should not be construed that actions taken as a result of this work will achieve compliance or prevent accidents or loss. Neither should it be construed that any recommendations noted are the only possible actions to be taken.

Vigo County School Corporation should assess and analyze each observation in relation to a more intimate knowledge of resources, objectives, and activities. Decisions should be made and acted on accordingly.

Erin Dempsey
Senior Project Manager
ACM Engineering & Environmental Services

November 13, 2023

Date