Fike
Analytical Technologies, L.L.C.

Fike Analytical Technologies, L.L.C. ~ 9800 Reese Rd. ~ Clarkston, MI 48348 ~ 248-241-6713

AirSurvey and VOC Example Reports

Index

This is an example AirSurvey report. Most reports are 3-4 pages long. This example is abbreviated.

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Analytical Report

Client: ABC Company
Project: Processing Site
Location: Anywhere, USA
Sampled By: J. Cammel

C.O.C. No.: 23001
Order Date: 02/26/2018
Report Date: 02/28/2018

NIOSH 2549 AirSurvey Analysis All results are reported in ng/L

A scan was made for all compounds contained in the attached AirSurvey List of Compounds Quantitative List and Semiquantitative List. All compounds detected are listed below:

Client Sample ID: Process 1
Laboratory ID: 23001-1
Date Sampled: 02/25/2018
Date Analyzed: 02/27 Volume: 39. L

Detection Limits	
Quantitative List:	0.3 ng/L
Semiquantitative List:	2 ng/L

Compound	Calculated Result	Actual Result	Comments
Total VOCs		1,400	Total volatile organic compounds calculated based on internal standard ratio; does not include C1, C2, or methanol
Toluene		66	Methyl benzene ppb 17 MW 92 CAS 108-88-3
m,p-Xylene		28	m,p-Dimethylbenzene; CAS number is for the para isomer ppb 6.4 MW 106 CAS 106-42-3
o-Xylene		11	o-Dimethylbenzene ppb 2.5 MW 106 CAS 95-47-6
Diethyldisulfide	0.04	0.02-0.08	During AirSurvey analysis, most of the C1-C3 mercaptans are converted to the disulfides. The presence of a disulfide is usually indicative of the presence of the corresponding mercaptans in the original sample. ppb 0.008 MW 122 CAS 110-81-6
Hexanal	410	200-820	Hexaldehyde; caproic aldehyde ppb 100 MW 100 CAS 66-25-1
a-Pinene	390	190-780	2-Pinene ppb 70 MW 136 CAS 80-56-8
C10-C12 Hydrocarbon	79	39-160	27.3 min; contains oxygen; appears to be a substituted primary alcohol

These results have been reviewed and approved by the Technical Director

Randall S. Fike, Ph.D.

Fike Analytical Technologies, L.L.C.
9800 Reese Rd.
Clarkston, MI 48348
248-241-6713

Fike
Analytical Technologies, L.L.C.

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NIOSH 2549 / AirSurvey Analysis
List of Compounds

Quantitative List

Benzene
Bromobenzene
Bromochloromethane
Bromodichloromethane
Bromoform
n-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
Carbon Disulfide
Carbon Tetrachloride
Chlorobenzene
Chlorodibromomethane
Chloroethane
Chloroform
2-Chlorotoluene
4-Chlorotoluene
1,2-Dibromo-3-chloropropane
Dibromomethane
1,2-Dibromoethane
1,2-Dichlorobenzene
1,3-Dichlorobenzene
1,4-Dichlorobenzene
Dichlorodifluoromethane
1,1-Dichloroethane
1,2-Dichloroethane
1,1-Dichloroethene
1,2-Dichloroethene (cis)
1,2-Dichloroethene (trans)
1,2-Dichloropropane
1,3-Dichloropropane
2,2-Dichloropropane
1,1-Dichloropropene
1,3-Dichloropropene (cis)
1,3-Dichloropropene (trans)
1,4-Dioxane
Ethylbenzene
Hexachlorobutadiene
Hexachloroethane
Isopropylbenzene
p-Isopropyltoluene
Methylene Chloride
2-Methylnaphthalene
MIBK
MTBE
Naphthalene
n-Propylbenzene
Styrene
1,1,2,2-Tetrachloroethane
1,1,1,2-Tetrachloroethane
Tetrachloroethene
Toluene
1,2,3-Trichlorobenzene
1,2,4-Trichlorobenzene
1,1,1-Trichloroethane
1,1,2-Trichloroethane
Trichloroethene
Trichlorofluoromethane
1,2,3-Trichloropropane
1,1,2-Trichloro-1,2,2-trifluoroethane
1,2,4-Trimethylbenzene
1,3,5-Trimethylbenzene
Vinyl Chloride
m & p-Xylene
o-Xylene
C5-C15 Straight-Chain HCs

Semiquantitative List

Acetealdehyde
Acetone (2-Propanone)
Acetonitrile
Acetophenone
Acrolein
Acrylonitrile
Allyl alcohol (2-Propenol)
Allyl chloride
Anisaldehyde
Benzaldehyde
Benzenethiol
2,3-Benzofuran
Benzoic acid
Benzonitrile
Benzophenone
Benzothiazole
Benzylalcohol
Benzylbenzoate
Benzylchloride
Benzylpropionate
Biphenyl
1-Borneol
Bornyl acetate
Bromobenzene
2-Bromobutane
4-Bromo-1-butene
Bromochloroacetonitrile
2-Bromochlorobenzene
3-Bromochlorobenzene
4-Bromochlorobenzene
2-Bromo-1-chloropropane
Bromochlorofluoro Methane
Bromodichlorobenzene
Bromoethene (Vinyl Bromide)
1-Bromopropane
2-Bromopropane
1-Buten-3-yne
Butadiene
Butanal
1-Butanol
2-Butanol
t-Butanol
2-Butanone (MEK)
2-Butenal (trans)
1-Butoxy-2-propanol
2-Butoxyethanol
2-Butoxyethylacetate
2-n-Butylacrolein
n-Butylbenzene
sec-Butylbenzene
tert-Butylbenzene
2,4-(bis-tert Butyl) phenol
m-tert-Butyl phenol
n-Butylacetate
Butylcaprylate
Butylcyclohexane
4-tert-Butylcyclohexylacetate
di-n-Butylether
tert-Butylmercaptan
Butylmethacrylate
di-t-Butylether
sec-Butylethylbenzene
2-n-Butylfuran
1-Butylhexylbenzene
sec-Butylmercaptan
C 3 (Propane)
C 4 (Butane)
C 5 (Pentane)
C 6 (Hexane)
C 7 (Heptane)
C 8 (Octane)
C 9 (Nonane)
C 10 (Decane)
C 11 (Undecane)
C 12 (Dodecane)
C 13 (Tridecane)
C 14 (Tetradecane)
C 15 (Pentadecane)
C 16 (Hexadecane)
Camphene
Camphor
Iso-Caprolactone
Carbon disulfide
Carbontetrabromide
3-Carene
Carvone
Caryophyllene
α-Cedrene
Cedrol
Chloroaniline
1-Chloro-1,1-difluoroethane
Chloroethane
1-Chloro-1-fluoroethene
3-Chloro-2-methyl-1-propene
1-Chloro-2-propanol
cis 1-Chloro-1-propene
trans 1-Chloro-1-propene
p-Chlorobenzenethiol
Chlorodifluoromethane
2-Chloroethylvinylether
p-Chlorophenol
2-Chloropropene
3-Chloropropene
2-Chlorotoluene
4-Chlorotoluene
2-Chloro-3,3,3-trifluoropropene
Chlorotrifluoroethene
1-Chloro-4-trifluoro--methylbenzene
1,4-Cineole
Cinnamaldehyde
Z-Citral
Citronellol
Citronellyl acetate
Citronellyl formate
α-Copaene
o-Cresol
m-Cresol
p-Cresol
Crotonaldehyde
a-Cubebene
Cyclohexane
Cyclohexanol
Cyclohexanone
Cyclohexene
4-Cyclohexylbenzenamine
n-Cyclohexylcyclohexanamine
Cyclopentane
Cyclopentanone
Cyclopentene
Decahydronaphthalene
Decanal
Decanoic acid
2-Decanone
Diallyl disulfide
Diallyl sulfide
Diallyl tetrasulfide
Diallyl trisulfide
1,2-Dibromo-3-chloropropane
Dibromomethane
2,5-Dibromotoluene
1,1-Dichloro-1-fluoroethane
1,3-Dicholoropropane
2,2-Dichloropropane
1,1-Dichloropropene
2,3-Dichloro-1-propene
1,4-Dichloro-2-butene (cis)
1,4-Dichloro-2-butene (trans)
1,1-Dichloro-2-ethenyl--cyclopropane
Dichlorofluoromethane
Dichlorotetrafluoroethane (CFC-114)
Dicyclohexylamine
1-Ethoxy-2-(2-ethoxyethoxy)ethane
N,N-Diethylacetamide
Diethyl disulfide
Diethylbenzene #
Diethylether
N,N-Diethylformamide
Diethylphthalate
1,1-Difluoroethane
2,5-Dihydrofuran
2,3-Dihydro-4-methyl-1H-
2,3-Dihydro-5-methyl-1H-Indene
Diisopropyladipate
Diisopropyldisulfide
Diisopropylether

1,1-Dimethoxy-2-butene
1,1-Dimethoxyheptane
1,1-Dimethoxyhexane
Dimethoxymethane
1,1-Dimethoxynonane
1,1-Dimethoxyoctane
1,2-Dimethoxypropane
N,N-Dimethyl acetamide
Dimethyladipate
Dimethylamine
Dimethylaminoacetonitrile
N,N-Dimethyl benzenamine
Dimethyl disulfide
1,3-bis(1,1-Dimethylethyl)--benzene
Dimethyl ether
2,5-Dimethylhexane
Dimethylphthalate
2,5-Dimethylpyrazine
Dimethyl sulfide
Dimethyl trisulfide
2,2-Dimethyl-1-pentanol
N,N-Dimethylcyclohexanamine
1,1-Dimethylcyclohexane
Dimethylester of pentanedioic acid
1,1-Dimethylethoxybenzene
2,4-Dimethylfuran
2,5-Dimethylfuran
2,6-Dimethyl-4-heptanone (Diisobutyl Ketone)
2,3-Dimethylphenol
2,5-Dimethylphenol
1,4-Dimethylpiperazine
2,5-Dimethylpyrazine
p-alpha Dimethylstyrene
Dimethylsuccinate
Dimethylsulfoxide
Di-n-butyldisulfide
Di-n-propyldisulfide
1,4-Dioxane
Diphenylamine
Diphenylether
Diphenylsulfide
1-Dodecanol (Lauryl alcohol)
1-Dodecene
Epichlorohydrin
Ethanol
2-(2-ethoxyethoxy)Ethanol
2-(2-butoxyethoxy)Ethanol
2-(2-methoxyethoxy)Ethanol
4-Ethenyl cyclohexene
1-Ethenyl-3-methylbenzene
3-Ethenyl-pyridine
Ethoxymethylbenzene
Ethylacetate
Ethyl-tert-butylether (ETBE)
Ethyl butyrate
2-Ethyl-1-hexanol
2-Ethyl-1-hexene
Ethyl 2-methylbutyrate
Ethyl 3-methylbutyrate
2-Ethyl-4-methyl-1,3- dioxolane
Ethylacetate
Ethylacrylate
Ethylbenzoate
Ethylcyclohexane
Ethylcyclopentane
Ethyl-3-ethoxypropionate
2-Ethylhexanal
Ethylhexanoate
2-Ethylhexanoic acid
2-Ethylhexylacetate
Ethylmethylacrylate
m,p-Ethylmethylbenzene
o-Ethylmethylbenzene
Ethylmethylphenylglycidate
Eucalyptol
Eugenol
D-Fenchol
Fenchone
Fluorobenzene
3-Furaldehyde
2-Furaldehyde
Furan
2-Furanmethanol
Geraniol
1112333 Heptafluoropropane
Heptanal
1-Heptanol
3-Heptanone
2-Heptanone
Heptylbenzene
Hexachloroethane
1,1,1,3,3,3-Hexafluoro-2- propanol
Hexanal
Hexanoic acid
1-Hexanol
1-Hexene
2-Hexene
3-Hexene
n-Hexylacetate
2-Hexyloxyethanol
4-Hydroxy-4-methyl-2-pentanone
Indane
Indene
Indole
Iodomethane
trans-beta-Ionone
Isoamylbenzoate
Isobornylacetate
Isobutanal
Isobutane
Isobutanol (2-Methyl-1--propanol)
Isobutylacetate
Isobutylketone
Isofluorane
α-Isomethyl ionone
Isononyl acetate
Isoprenol
Isopropanol
p-Isopropylbenzaldehyde
Isopropylbenzene
Isopropylmercaptan
Isopropylphenylketone
1-Isopulegol
Limonene
Linalool
Linalool propionate
Lilial
Linalyl acetate
Linalyl propanoate
Longifolene
Menthol
Menthone
Mesityl methyl ketone
2-(1-Methoxy)propylacetate
2-Methoxy-2-methylbutane
2-Methoxy-1-propanol
1-Methoxy-2-propanol
1-Methoxy-4-(2-propenyl)--benzene
Methoxybenzene
1-Methoxycyclohexene
N-Methoxymethaneamine
1-Methoxy-4-methylbenzene
2-Methoxynaphthalene
2-Methoxyphenol
1-Methoxy-2-propanone
Methoxytrimethylsilane
Menthyl acetate
Methenamine
Methyl allyl disulfide
α-Methylbenzene
2-Methyl benzofuran
N-Methyl-1-butanamine
1-Methyl decahydro--naphthalene
2-Methyl decahydro--naphthalene
Methyldodecanoate
Methyl isopropyl ketone
Methyl salicylate
Methyl styrene
Methyl thiirane
3-Methyl-1H-indole (Skatole)
2-Methyl-1,3,5-hexatriene
2-Methyl-1,3-dioxolane
2-Methyl-1-propene
2-Methyl-2,4-pentanediol
4-Methyl-2-pentanone (MIBK)
1-Methyl-2-pyrrolidinone
2-Methyl-3-buten-2-ol
Methyl-3-methoxypropionate
4-Methyl-3-penten-2-one
6-Methyl-5-hepten-2-one
Methylacetate
Methylacrylate
Methacrylonitrile
N-Methylaniline
Methylbenzoate
2-Methylbutane
2-Methylbutanal
3-Methyl-1-butylacetate
3-Methylbutanal
Methylbutylbenzene
Methylcyclohexane
Methylcyclopentane
1-Methylcyclopentene
bis-(1-Methylethyl) benzene
1-Methylethylacetate
α-Methylcinnamaldehyde
Methyldihydrojasmonate
Methylethylbenzene
Methylethyldisulfide
Methylethylsulfide
5-Methyl-2-furaldehyde
2-Methylfuran
Diethyl ether
2-Methylheptane
3-Methylheptane
4-Methylheptane
5-Methyl-3-heptanone
2-Methylhexane
3-Methylhexane
2-Methyl-3-hexanone
Methylisothiocyanate
Methylmethacrylate
2-Methylmethylpropionate
1-Methylnaphthalene
2-Methylnaphthalene
4-Methyl-2-pentanol
Methyl-n-pentyldisulfide
2-Methyl-2-propanamine
2-Methyl-1-propene
2-Methyl-2-propanol
1-Methylpropylacetate
2-Methylpropylacetate
Methyl-n-propyldisulfide
Methyl-n-propylsulfide
3-Methyloctane
2-Methylpyridine
Methylpyrazine
N-Methylpyrrole
α-Methylstyrene
2-(Methylthio)-butane
Methylthiophene
1-(Methylthio)-1-propene
MTBE (Methyl tert butyl ether)
4-Methylmorpholine
Myrcene
Neryl acetate
Nicotine
Nitromethane
Nonanal
1-Nonanol
2-Nonanone
2-Nonenal (trans)
Octamethylcyclotetrasiloxane
Octanal
Octanoic acid
Oxazole
Pentachloroethane
1,3-Pentadiene
Pentafluoroethane
11133-Pentafluoropropane
Pentamethylheptane
Pentanoic acid
1-Pentanol
2-Pentanone
1-Pentylacetate
2-Pentylacetate
2-Pentylfuran
α-Phellandrene
Phenol
2-Phenoxyethylacrylate
Phenylacetaldehyde
4-Phenylcyclohexene (4-PCH)
1-Phenylethylacetate
Phenylethyne
N-Phenylmethacrylamide
Phenylmethylsulfide
1-Phenyl-1,2-propanedione
3-Phenyl-2-propenal
Pinane
α/β-Pinene
Piperidine
Piperonal
Prenol
Propanal
n-Propanol
p-Propenylanisole
2-Propenylbenzene
2-Propenylhexanoate
Propionitrile
n-Propylacetate
n-Propylamine
n-Propylbenzene
Propylcyclohexane
2-Propylfuran
Pulegone
Pyrazine
Pyrrole
Quinoline
Rose Oxide
Sabinene
Sevoflurane
Sulfolane
α-Terpinene
γ-Terpinene
4-Terpineol
Terpinolene
α-Terpinyl acetate
1,1,1,2-Tetrachloroethane
Tetrahydrofuran
Tetrahydrothiophene
Texanol-A
Texanol-B
Thiophene
Thiophenol
Thujone
Triacetin
Tributylamine
Trichlorofluoromethane
1,1,2-Trichloro-1,2,2-trifluroethane
1,1,1-Trichloro-2-propene
Trichlorobenzene #
1,2,3-Trichloropropane
Tricyclene
Triethylamine
Triethylbenzene #
1,3,5-Triisopropylbenzene
1,2,3-Trimethylbenzene
Trimethylcyclohexane
3,3,5-Trimethylcyclohexanone
2,3-Trimethylenenorbornane
Trimethylethylbenzene #
2,2,4-Trimethylpentane
Trimethylpyrazine
Trimethylsilane
Trimethylsilanol
1,2,4-Trithiolane
Valeraldehyde (Pentanal)
Vinyl acetate

 # isomers of

Rev 6 For compounds not on this list or for more information, call Dr. Fike at:

Fike Analytical Technologies, L.L.C.
248-241-6713
randall@reagan.com

Fike
Analytical Technologies, L.L.C.

9800 Reese
Clarkston, MI 48348

Fike
Analytical Technologies, L.L.C.

Indoor Air Quality Summary

Client:	ABC Company	Sample Number:	23001 - 1
Project:	Processing Site	Date Sampled:	02/25/2018
Location:	Anywhere, USA	Order Date:	02/26/2018
Sampled By:	J. Cammel	Date Analyzed:	04/13
Submitter ID:	Process 1	Date Reported:	02/28/2018

IAQ Summary

Total VOCs (TVOC), ng/L: 1,600

Mold VOCs (TMVOC), ng/L: 15

Sample Volume (L): 39

Notes:

Understanding the Results:

TVOC (Total Volatile Organic Compounds)

No federal or state agency has specified a specific limit for Total Volatile Organic Compounds (TVOCs) in indoor air; however, several members of the European Union and the U. S. Green Building Council (USGBC) have recommended 500 ng/L as the limit. Note that if all of the TVOC is the result only one or a small number of components, a hazardous condition may still exist.

In homes, usually, TVOC levels below 200 ng/L indicate that the Indoor Air Quality (IAQ) is "Ideal," TVOC levels between 200 and 300 ng/L indicate that the IAQ is "Good," TVOC levels between 300 and 400 ng/L indicate that the IAQ is "Acceptable," and TVOC levels between 400 and 500 ng/L indicate that the IAQ is "Marginal." TVOC levels above 500 ng/L indicate that a problem may exist and it should be addressed.

In commercial buildings, TVOC levels below 200 ng/L indicate that the IAQ is "Ideal," TVOC levels between 200 and 350 ng/L indicate that the IAQ is "Good," TVOC levels between 350 and 500 ng/L indicate that the IAQ is "Acceptable," and TVOC levels between 500 and 700 ng/L indicate that the IAQ is "Marginal." TVOC levels above 700 ng/L indicate that a problem may exist and it should be addressed.

In production and manufacturing facilities, TVOC levels below 500 ng/L indicate that the IAQ is "Ideal," TVOC levels between 500 and 700 ng/L indicate that the IAQ is "Good," TVOC levels between 700 and 1,000 ng/L indicate that the IAQ is "Acceptable," and TVOC levels between 1,000 and 1,500 ng/L indicate that the IAQ is "Marginal." TVOC levels above 1500 ng/L indicate that a problem may exist and it should be addressed.

In all cases, exposure effects are possible with TVOC levels between 1,500 and 3,000 and exposure effects are probable at TVOC levels above 3,000 ng/L. Exposure effects may include eye and respiratory irritation, headaches, drowsiness, nausea, general malaise, etc.

Based on what the individual compounds are that make up the TVOC, it is possible to suggest actions which will lower the level into an acceptable range. Contact the person who took this sample for more information.

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Sample Number: 23001 - 1

Indoor Air Quality Summary

Understanding the Results: Page 2 of 2

TMVOC (Total Mold Volatile Organic Compounds)

This is an assessment of the quantity of actively growing mold in the building. This test will not detect inactive or dormant mold. Like TVOC, no federal or state agency has specified specific limits for TMVOC. Typically, if there is no plumbing leak or water intrusion into the building, there will not be a mold problem. If the presence of mold is indicated, the first step in fixing the problem is to find and eliminate the water source. Typical places to check are roof leaks, plumbing leaks, leaks under the windows, leaking appliances, and sweating fixtures.

For Normal Individuals:

TMVOC levels below 6 ng/L typically indicate that there is a minimal amount of actively growing mold present. Levels between 6 and 20 ng/L indicate a low level of mold is present and people sensitive to mold may be affected. Levels between 20 and 60 ng/L indicate that actively growing mold is present at a moderate level and building occupants will probably be affected. Levels above 60 ng/L indicate that a high level of mold is present and most building occupants will be affected.

For Hypersensitive Individuals:

TMVOC levels below 3 ng/L indicate very reduced levels of actively growing mold may be present which will typically not affect hypersensitive individuals. Levels between 3 and 10 ng/L indicate that actively growing mold is present that may affect hypersensitive individuals. Levels between 10 and 20 ng/L indicate that actively growing mold is present; and significant allergic reactions for hypersensitive individuals are possible. Levels above 20 ng/L indicate that significant, active mold growth is present that will probably affect most hypersensitive individuals.

The TMVOC ranges cited above and their interpretation are not absolute as many conditions affect the quantity of MVOCs detected. Therefore, it must be understood that these results are not definitive but are meant as a general guideline only.

Caution should always be exercised when removing mold and it is recommended that a professional mold remediator be consulted before any removal is initiated.

Fike Analytical Technologies, L.L.C. (Fike), is not a laboratory but serves as a clearinghouse for data submitted by laboratories chosen by the submitter. The results contained in this report are dependent upon a number of factors over which Fike has no control, which may include, but are not limited to, the sampling technique utilized, the size or source of sample, the ability of the sampler to collect a proper or suitable sample, or the values reported by the submitter's laboratory. Therefore, the opinions contained in this report may be invalid and cannot be considered or construed as definitive and neither Fike, nor its agents, officers, directors, employees, or successors shall be liable for any claims, actions, causes of action, costs, loss of service, medical or other expenses or any compensation whatsoever which may now or hereafter occur or accrue based upon the information or opinions contained herein.

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Total Volatile Organic Compounds (TVOCs) in Air

Home[1]	**Office**[1]	
TVOC Level ng/L (µg/m^3)	**TVOC Level** ng/L (µg/m^3)	**Meaning**
Less than 200	Less than 200	Ideal
200-300	200-350	Good
300-400	350-500	Acceptable
400-500	500-700	Marginal
More than 500	More than 700	Actionable level; the higher the number, the worse the problem

Production/Manufacturing[1,2]	
TVOC Level ng/L (µg/m^3)	**Meaning**
Less than 500	Ideal
500-700	Good
700-1000	Acceptable
1000-1500	Marginal
More than 1500	Actionable level; employee complaints probable; the higher the number, the worse the problem
1500-3000	Exposure effects[3] possible
3000-25000	Exposure effects[3] probable
More than 25000	Toxic range, potential neurological effects

Notes:

1. These levels are applicable to normal individuals; they are not applicable to chemically sensitive individuals.
2. Specific production operations may exceed these levels due to the presence of one or more compounds characteristic of a specific operation. In those cases, it is recommended that OSHA or NIOSH limits be used for those individual compounds and that they not be included in the Total VOC value.
3. Exposure effects – eye and respiratory irritation, headaches, drowsiness, nausea, general malaise, etc.

$$TVOC = [(As - Ab) \times Ws / Ai] / Ls$$

Where: As = C3-C15 TIC (Total Ion Chromatogram) area of the Sample
Ab = C3-C15 TIC area of the blank
Ws = Weight of the internal standard added in ng
Ai = TIC area of the internal standard peak
Ls = Volume of the sample in L

The levels listed in this table and the potential reactions described are based on work done by L. Molhave, (Volatile Organic Compounds, Indoor Air Quality and Health, Vol. 5, International Indoor Air Quality Conference, Toronto, Canada, 1990, p. 22 ff) and others as well as empirical information gained through interactions with many professionals who are active in the IAQ field. These levels should not, in any way, be construed as definitive. Liability for reliance on the data contained in the above tables is therefore disclaimed

This table was first published in the technical paper Fike, R. S., "VOCs," Indoor Environment Connections, Vol. 8, Issue 10, August, 2007, p. 37 ff.

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TMVOC Interpretation

Normal Individuals		
TMVOC (ng/L)	**Level**	**Explanation**
< 6	Minimal	Actively growing mold may be present but is at or below levels found in many homes and working environments.
6-20	Low	Actively growing mold is present but is at a level which, generally, may only adversely affect individuals sensitive to molds.
20-60	Moderate	Actively growing mold is present; significant allergic reactions are possible.
60-100	Heavy	Very significant levels of actively growing mold are present; significant allergic reactions are very probable.
> 100	Severe	Very high levels of actively growing mold are present; immediate action should be taken.

Hypersensitive Individuals		
TMVOC (ng/L)	**Level**	**Explanation**
< 3	Minimal	Actively growing mold may be present but is at or below levels found in most homes and working environments.
3-10	Low	Actively growing mold is present but is at a level which, generally, may only adversely affect hypersensitive individuals.
10-20	Moderate	Actively growing mold is present; significant allergic reactions are possible.
20-30	Heavy	Very significant levels of actively growing mold are present; significant allergic reactions are very probable.
> 30	Severe	Very high levels of actively growing mold are present; immediate action should be taken.

This is an assessment of the quantity of actively growing mold in the building. This test will not detect inactive or dormant mold. Like TVOC, no federal or state agency has specified specific limits for TMVOC. Typically, if there is no plumbing leak or water intrusion into the building, there will not be a mold problem. If the presence of mold is indicated, the first step in fixing the problem is to find and eliminate the water source. Typical places to check are roof leaks, plumbing leaks, leaks under the windows, leaking appliances, and sweating fixtures.

The TMVOC ranges cited above and their interpretation are not absolute as many conditions affect the quantity of MVOCs detected. Therefore, it must be understood that these results are not definitive but are meant as a general guideline only.

Caution should always be exercised when removing mold and it is recommended that a professional mold remediator be consulted before any removal is initiated.

Fike
Analytical Technologies, L.L.C.

SPFScan Report

Client: ABC Company
Project: Your Project
Location: Your Location
Sampled By: S. Bear

C.O.C. No.: 9999
Order Date: 02/26/2018
Report Date: 02/28/2018

Client Sample ID: Your Sample Name
Laboratory ID: 9999 -1
Date Sampled: 02/25/2018
Date Analyzed: 02/27 Volume: 40. L

Thank you for choosing

ABC Company
123 Main Street
Anywhere, USA 55512
555 555-1212

SPFScan is a very sensitive air test to check for the thermal degradation products of misapplied Spray Polyurethane Foam (SPF). It is not deisgned to detect properly applied SPF. People have a very wide difference in their ability to perceive these odors.

Fike Analytical Technologies, L.L.C., uses a number of proprietary chemical "marker" patterns to determine the presence of the thermal degradation products of misapplied SPF. The quantity and quality of those marker patterns are combined to generate a value for the probability that odors will be perceived in the area sampled. Any value greater than 20% is a positive indication that SPF has been misapplied. The reporting scale is a continuum from 0% to >100% with 100% being defined as the level nearly all persons will be able to smell the odor.

Probability that odor from misapplied SPF will be perceived: 60%

Probability Reported	Interpretation
< 2%	The odor of misapplied Spray Polyurethane Foam (SPF) may be present but is at a level that is imperceptible to most people.
2 - 10%	The odor of misapplied Spray Polyurethane Foam (SPF) is present at a level that may only be perceptible to persons sensitive to the smell.
10 - 20%	The odor of misapplied Spray Polyurethane Foam (SPF) is present at a level that may be perceptible to many people.
20 - 40%	The odor of misapplied Spray Polyurethane Foam (SPF) is present at a level that may be perceptible to most people.
40 - 100%	The odor of misapplied Spray Polyurethane Foam (SPF) is present at a level that is perceptible to nearly all people.
> 100%	These odor levels of misapplied Spray Polyurethan Foam (SPF) are “off scale” and may be found in places such as buildings where SPF has been applied less than one week prrviously. They may also be found in buildings where the SPF installation has gone horribly wrong.

Note: Trying to cover up the odor from misapplied SPF using odorants is not effective. The odor will not go away over time. Reducing the odors can only be accomplished by removing the missapplied SPF and cleaning the area using a dry ice blast.

The results contained in this report are dependent upon a number of factors over which Fike Analytical Technologies, L.L.C. (Fike), has no control, which may include, but are not limited to, the sampling technique utilized, the size or source of sample, and/or the ability of the sampler to collect a proper or suitable sample. Therefore, the opinions contained in this report may be invalid and cannot be considered or construed as definitive and neither Fike, nor its agents, officers, directors, employees, or successors shall be liable for any claims, actions, causes of action, costs, loss of service, medical or other expenses or any compensation whatsoever which may now or hereafter occur or accrue based upon the information or opinions contained herein.

Fike
Analytical Technologies, L.L.C.

SmokeScan Report

Client: ABC Company
Project: Live Oaks Condominiums
Location: Anywhere, USA
Sampled By: J. Cammel

C.O.C. No.: 23001
Order Date: 03/06/2015
Report Date: 03/10/2015

Client Sample ID: Unit 53-B
Laboratory ID: 23001 - 4
Date Sampled: 03/05/2015
Date Analyzed: 03/10 Volume: 39.7 L

Thank you for choosing

ABC Company
123 Main Street
Anywhere, USA 55512
555 555-1212

SmokeScan is a very sensitive air test to check for odors commonly referred to as "stale cigarette smoke" or "third hand smoke." It is also able to detect "fresh" cigarette smoke commonly referred to as "first" or "second hand" cigarette smoke. People have a very wide difference in their perception of the odor of residual or stale cigarette smoke.

Fike Analytical Technologies, L.L.C., uses a number of proprietary chemical "marker" patterns to determine the presence of residual or stale cigarette smoke. The quantity and quality of those marker patterns are combined to generate a value for the probability that residual or stale cigarette smoke will be perceived in the area sampled. Any value greater than 20% is a positive indication that tobacco smoke is present. The reporting scale is a continuum from 0% to >100% with 100% being defined as the level nearly all persons will be able to smell the odor. If active smoking is taking place during sampling, the results will be skewed toward the high end.

Probability that residual or stale cigarette smoke will be perceived: 37

Probability Reported	Interpretation
< 20%	The odor of residual or stale cigarette smoke may be present but is at a level that is imperceptible to most people.
20 - 40%	The odor of residual or stale cigarette smoke is present at levels that may only be perceptible to persons sensitive to the smell.
40 - 60%	The odor of residual or stale cigarette smoke is present at a level that may be perceptible to many people.
60 - 80%	The odor of residual or stale cigarette smoke is present at a level that may be perceptible to most people.
80 - 100%	The odor of residual or stale cigarette smoke is present at a level that is perceptible to nearly all people.
> 100%	These levels of residual or stale cigarette smoke odors are “off scale” and may be found in places such as homes of active, heavy smokers, in automobiles belonging to active, heavy smokers, in smoke shops, etc. or in the immediate vicinity of where smoking is actively taking place.

Note: Trying to cover up the smell of residual or stale cigarette smoke using odorants is not effective. Reducing the odors can only be accomplished by cleansing the area.

The results contained in this report are dependent upon a number of factors over which Fike Analytical Technologies, L.L.C. (Fike), has no control, which may include, but are not limited to, the sampling technique utilized, the size or source of sample, the ability of the sampler to collect a proper or suitable sample, and/or the age of stale cigarette smoke deposits. Therefore, the opinions contained in this report may be invalid and cannot be considered or construed as definitive and neither Fike, nor its agents, officers, directors, employees, or successors shall be liable for any claims, actions, causes of action, costs, loss of service, medical or other expenses or any compensation whatsoever which may now or hereafter occur or accrue based upon the information or opinions contained herein.

Fike
Analytical Technologies, L.L.C.

FireScan Report

Client: ABC Company
Project: Your Project
Location: Your Location
Sampled By: S. Bear

C.O.C. No.: 9999
Order Date: 02/26/2018
Report Date: 02/28/2018

Client Sample ID: Your Sample Name
Laboratory ID: 9999 -1
Date Sampled: 02/25/2018
Date Analyzed: 02/27 Volume: 40. L

Thank you for choosing

ABC Company
123 Main Street
Anywhere, USA 55512
555 555-1212

FireScan is a very sensitive air test to check for residual odors typically resulting from previous fires and smoke. People have a very wide difference in their ability to perceive these residual odors.

Fike Analytical Technologies, L.L.C., uses a number of proprietary chemical "marker" patterns to determine the presence of residual fire and smoke odors. The quantity and quality of those marker patterns are combined to generate a value for the probability that residual fire and smoke odors will be perceived in the area sampled. Any value greater than 20% is a positive indication that fire and smoke odors are present. The reporting scale is a continuum from 0% to >100% with 100% being defined as the level nearly all persons will be able to smell the odor. If an active fire is taking place during sampling, the results will be skewed toward the high end.

Probability that residual fire or smoke odors will be perceived: 20%

Probability Reported	Interpretation
< 2%	The odor of residual fire or smoke may be present but is at a level that is imperceptible to most people.
2 - 10%	The odor of residual fire or smoke is present at a level that may only be perceptible to persons sensitive to the smell.
10 - 20%	The odor of residual fire or smoke is present at a level that may be perceptible to many people.
20 - 40%	The odor of residual fire or smoke is present at a level that may be perceptible to most people.
40 - 100%	The odor of residual fire or smoke is present at a level that is perceptible to nearly all people.
> 100%	These levels of residual fire or smoke odors are “off scale” and may be found in places such as buildings where a fire is actively smoldering or burning, where a poorly drafted fireplace is burning, or where the combustion of tobacco products is actively taking place.

Note: Trying to cover up residual fire or smoke odors using odorants is not effective. Reducing the odors can only be accomplished by cleansing, replacing, or sealing the source.

The results contained in this report are dependent upon a number of factors over which Fike Analytical Technologies, L.L.C. (Fike), has no control, which may include, but are not limited to, the sampling technique utilized, the size or source of sample, the ability of the sampler to collect a proper or suitable sample, and/or the age of stale cigarette smoke deposits. Therefore, the opinions contained in this report may be invalid and cannot be considered or construed as definitive and neither Fike, nor its agents, officers, directors, employees, or successors shall be liable for any claims, actions, causes of action, costs, loss of service, medical or other expenses or any compensation whatsoever which may now or hereafter occur or accrue based upon the information or opinions contained herein.

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Aged Feline Urine
Index Interpretation

Normal Individuals		
Index Value	**Level**	**Explanation**
<0.1		No aged feline urine detected
>0.1-1	Low	Aged feline urine detected but is at a level which will not typically be perceived
1-3	Moderate	Aged feline urine detected but is at a level which will only be perceived by those sensitive to the odors
3-8	Heavy	Aged feline urine detected and is at a level which will be perceived by most people and offensive to some
8-12	Severe	Aged feline urine detected and is at a level which will be offensive to most people and highly offensive to some
12-16	Critical	Aged feline urine is detected and is at a level which demands immediate remediation Health risk may be present
>16	Extreme	Entry into the area requires PPE

February, 2018

This is an assessment of the quantity of aged feline urine present. This test will not detect "fresh" feline urine. No federal or state agency has specified specific limits for FUI. The index levels apply to "normal" individuals. Hypersensitive individuals may be affected more severely.

The FUI ranges cited above and their interpretation are not absolute as many conditions may affect the value of FUI. Therefore, it must be understood that these results are not definitive but are meant as a general guideline only.

No level of safety risk is implied by this index. Caution should always be exercised when entering an area contaminated with feline urine. Caution should always be exercised when handling or removing material contaminated with feline urine. It is recommended that a professional remediator be consulted before any removal or remediation is initiated.

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How do I Read a Fike Analytical AirSurvey Report?
or
"Fike-Speak"

To understand what a Fike Analytical AirSurvey report means you must be able to read it in the first place. This article is a compilation of headings and their meanings along with frequently asked questions to help understand the Fike-Speak we use in our reports.

Analysis name

This defines the scope of the analysis and applicable sections of List of Compounds or other documents that may apply.

Units

The unit used most often is ng/L (ng/L = µg/m^3); however, other units may be used.

Paragraph under banner

This statement tells the submitter what compounds were evaluated in the analysis. AirSurvey analyses involve investigations of compounds listed in the List of Compounds. Only those compounds that were detected are listed in the report. A copy of the List of Compounds accompanies each report.

Laboratory ID

This is the number under which all laboratory records are stored. If you call to discuss your results, it would be helpful to give this number to the person who answers the phone before you ask for the technical department.

Detection limits

The detection limit is determined by the volume of air sampled and by the total quantity of VOCs present. For samples that have massive quantities of analytes, many lower level compounds will be masked. It is usually best to address the source for the high level compounds and then resample to uncover other potential problems.

Compound

This column lists the most common name for the compound. While it may be a trivial name (such as "Toluene") it is usually an IUPAC name. IUPAC stands for International Union of Pure and Applied Chemistry. This organization has established a system of nomenclature for chemicals that is universally accepted. Other names for the compound may also be included under the "Comments" section. Where a compound is listed that is not specifically identified (such as C4-C6 Hydrocarbon) an indication of functionality (i.e. aldehyde, alcohol, ketone, etc.) is often included under the "Comments" section.

What does Cx mean?

Where Cx is listed separately, such as C6, C7, C8, etc., it indicates the specific, straight chain hydrocarbon (n-hexane, n-heptane, n-octane, etc.). This nomenclature is used for brevity and clarity (C14 is shorter to write and is easier to understand than n-tetradecane). Where Cx is used in a range, such as C6-C8 Hydrocarbon, it indicates all of the C6, C7, and C8 hydrocarbons within that range.

Calculated Result

If a compound is determined quantitatively, that is to say, there is an established calibration curve for the compound (this is true for all Quantitative List compounds in the List of Compounds), no number will be listed in this column. A number appears in this column only if the compound listed is determined semiquantitatively. An estimate of the concentration of semiquantitative compounds is made by taking a ratio of its chromatographic peak area to the area of the internal standards. Calculated values can be used quantitatively to determine the ratios between samples. For example, if Sample A has a calculated value for a specific compound of 400 and Sample B has a calculated value for the same compound of 800, it can be said, quantitatively, that Sample B has twice as much of that compound as Sample A. However, the number cannot be used quantitatively as a stand-alone value. Since the objective for taking an AirSurvey sample is usually to discover what compounds are present and estimate their concentrations in an effort to determine potential problems and sources, the accuracy of the values listed under "Calculated Result" are sufficient. Should more accurate values be required, a calibration curve can be established and additional samples analyzed.

Actual Result

If a compound is determined quantitatively, a single number is listed in this column. The value can be substantiated through the calibration curve and applicable quality control procedures. If a compound is determined semiquantitatively, a single number is listed under "Calculated Result" and a range is listed under "Actual Result". This range is typically 50% to 200% of the calculated value. Within one standard deviation, the actual concentration will fall within these limits.

Comments

If the entry under Compound is not a specific chemical (such as "substituted benzene" or C4-C6 Hydrocarbon), the first line in Comments column will include the retention time together with as much supporting information about the compound as possible. The retention time is listed to facilitate correlation between samples. For example, if the chemical listed under Compound is "C4-C6 Hydrocarbon", using the retention time, it is possible to match the compound to a "C4-C6 Hydrocarbon" listed for another sample. This is especially useful in cases where multiple hydrocarbons are listed.

If the entry under Compound is a specific chemical, the first line in this column lists other names for the compound. Where the name listed under Compound is a trivial name, like "toluene", the Column will indicate the IUPAC name "methylbenzene". Where the name listed under Compound is an IUPAC name like "isopropylbenzene", the Comments column will indicate the trivial name "cumene". Additional comments may also be included. In the case of some odorants, the nature of the odorant may be listed, for example, "sweet pine", "rose", or "tangerine".

If the entry under Compound is not a specific chemical, no information is listed in the bottom line under Comments. If the entry under Compound is a specific chemical, the bottom line lists the following:

ppb: This is parts per billion on a volume basis. This is a number calculated from the ng/L value listed under Actual Result (for quantitative compounds) or Calculated Result (for semiquantitative compounds) using the formula:

ppb = ng/L X (24.04 / MW)

where: MW = the molecular weight of the compound and 24.04 = 22.4 X (293 / 273)

where: 22.4 is the volume of one mole of ideal gas at 273 ºK (0 ºC)
and 293 is the assumed sampling temperature in ºK.

This formula assumes a sampling temperature of 20 ºC (68 ºF). Some organizations prefer to use 25 ºC (77 ºF) as the assumed sampling temperature which will change the 24.04 factor to 24.45.

MW: This is the mass spectral molecular weight of the compound. The mass spectral molecular weight is a whole number based on the sum of the weights of the most abundant isotopes of the atoms present. For example, benzene has a mass spectral molecular weight of 78 rather than the actual molecular weight of 78.11.

CAS: The Chemical Abstract Service assigns a unique number to all chemicals. This number is particularly useful in eliminating confusion in communicating the identity of the compound and in performing web searches.

Validity of Compound Identification

To determine the identity of each compound, the analyst will use various computerized search algorithms, his knowledge and skill in mass spectral interpretation, and his experience in the details and quirks of GC-MS analysis. The operator must be at least 95% confident in the validity of an identification before it will be listed specifically by name under "Compound" in an AirSurvey analysis. Where there is uncertainty in the validity of the identity of a compound, that level of uncertainty is written in standardized format and is provided to the submitter as part of the analytical report.

Fike Analytical is a consultative Air Testing Laboratory. We always welcome your questions and comments to help us learn new ways to serve you better.

Fike Analytical Technologies, L.L.C.
248-241-6713
randall@reagan.com

Fike
Analytical Technologies, L.L.C.

9800 Reese
Clarkston, MI 48348

Fike

Analytical Technologies, L.L.C.

Fike Analytical Technologies, L.L.C. ~ 9800 Reese Rd. ~ Clarkston, MI 48348 ~ 248-241-6713

WHAT ARE THE DIFFERENCES BETWEEN CANISTERS AND THERMAL DESORPTION TUBES?

Thermal Desorption Tubes	Canisters
Sample size analyzed = up to 40 L	Sample size analyzed = 0.1-1.0 L
Sample pump required; sampling rate adjustable on site	Sampling tree and critical orifice required; cannot be adjusted
UPS shipping for 6 thermal desorption tubes round trip Chicago – Los Angeles: Ground $15 2nd Day Air $75 Next Day Air $133	UPS shipping for six 6L canisters round trip Chicago – Los Angeles: Ground $150 2nd Day Air $540 Next Day Air $680
No cost to clean/certify thermal desorption tubes	Have to pay for cleaning and certification
50 thermal desorption tubes fit neatly into a brief case	You need a really big brief case
Analysis cost is lower	Analysis cost is more expensive
Keep several thermal desorption tubes for a year and you don't have to pay rent	Keep several canisters/regulators for a year and the rent will drive you out of business
One-Year shelf life	< 30 days shelf life
Convenient (can keep several tubes in your briefcase so they're always available, easy to haul around, ship in a 9"x4"x4" box)	Hassle (have to order for each job, large shipping containers, difficult to haul around just in case you need one)
Thermal desorption tubes are up to 400 times more sensitive	The struggle to gain sensitivity makes analyses prone to contamination problems
Can do compounds like nicotine, cresols, naphthalene, 2-methylnaphthalene, cedrol, menthol, 4-PCH, fragrances, acetophenone, camphor, methylsalicylate, geraniol, tri-chlorobenzene, citronellyl esters, C11-C15	Limited to C $\leq$ 10 compounds
All of the 400 thermal desorption compounds can be determined	Only 213 out of the 400 thermal desorption compounds can be determined
It's easy to make last minute changes in sampling parameters	You need to order a different critical orifice to make last minute changes in sampling parameters
Sulfur, nitrogen, and polar compounds can be determined easily	Difficulty determining sulfur, nitrogen, and polar compounds
Grab sample can be taken in 0.5-5 min	Grab sample can be taken in 0.2 min
$30 for sample taken and not analyzed	$75 for sample taken and not analyzed

Note that there is no distinction between quantitative and semiquantitative results.

Note that the prefix and the compound name are in two separate columns for easy sorting.

No restrictions have been placed on this file so that the user has total freedom to manipulate the data. Because of this and the fact that, once sent, Fike Analytical has no control over the data, Fike Analytical assumes no responsibility for the accuracy of this data. Fike Analytical's official results are sent only in the normal report format. Units: ng/L

COC	SN	DATE	PREFIX	COMPOUND	CALC	ACTUAL	RT	PPB	MW	CAS No.
4059	1	11/17/2017		Total VOCs		680				
4059	2	11/17/2017		Total VOCs		790				
4059	3	11/17/2017		Total VOCs		310				
4059	4	11/17/2017		Total VOCs		1,100				
4059	1	11/17/2017		C 5		51		17	72	109-66-0
4059	2	11/17/2017		C 5		81		27	72	109-66-0
4059	3	11/17/2017		C 5		16		5.3	72	109-66-0
4059	4	11/17/2017		C 5		100		33	72	109-66-0
4059	1	11/17/2017		C 6		5.3		1.5	86	110-54-3
4059	2	11/17/2017		C 6		11		3.1	86	110-54-3
4059	3	11/17/2017		C 6		2.9		0.8	86	110-54-3
4059	4	11/17/2017		C 6		14		3.9	86	110-54-3
4059	1	11/17/2017	1,1-	Dichloropropene		1.7		0.4	110	563-58-6
4059	2	11/17/2017	1,1-	Dichloropropene		2.7		0.6	110	563-58-6
4059	3	11/17/2017	1,1-	Dichloropropene		0.8		0.2	110	563-58-6
4059	4	11/17/2017	1,1-	Dichloropropene		4.0		0.9	110	563-58-6
4059	1	11/17/2017		Benzene		1.9		0.6	78	71-43-2
4059	2	11/17/2017		Benzene		2.7		0.8	78	71-43-2
4059	3	11/17/2017		Benzene		1.0		0.3	78	71-43-2
4059	4	11/17/2017		Benzene		4.2		1.3	78	71-43-2
4059	1	11/17/2017		Toluene		20		5.2	92	108-88-3
4059	2	11/17/2017		Toluene		21		5.5	92	108-88-3
4059	3	11/17/2017		Toluene		8.0		2.1	92	108-88-3
4059	4	11/17/2017		Toluene		48		13	92	108-88-3
4059	1	11/17/2017	1,1,1,2-	Tetrachloroethane		3.0		0.4	166	630-20-6
4059	2	11/17/2017	1,1,1,2-	Tetrachloroethane		3.8		0.6	166	630-20-6
4059	3	11/17/2017	1,1,1,2-	Tetrachloroethane		2.0		0.3	166	630-20-6
4059	4	11/17/2017	1,1,1,2-	Tetrachloroethane		0.7		0.1	166	630-20-6
4059	1	11/17/2017	m,p-	Xylene		30		6.8	106	106-42-3
4059	2	11/17/2017	m,p-	Xylene		32		7.3	106	106-42-3
4059	3	11/17/2017	m,p-	Xylene		17		3.9	106	106-42-3
4059	4	11/17/2017	m,p-	Xylene		47		11	106	106-42-3
4059	1	11/17/2017	1,2,4-	Trimethylbenzene		6.4		1.3	120	95-63-6
4059	2	11/17/2017	1,2,4-	Trimethylbenzene		6.2		1.2	120	95-63-6
4059	3	11/17/2017	1,2,4-	Trimethylbenzene		3.3		0.7	120	95-63-6
4059	4	11/17/2017	1,2,4-	Trimethylbenzene		20		4.0	120	95-63-6
4059	2	11/17/2017	p-	Isopropyltoluene		1.0		0.2	134	99-87-6
4059	4	11/17/2017	p-	Isopropyltoluene		0.9		0.2	134	99-87-6
4059	1	11/17/2017		Naphthalene		1.1		0.2	128	91-20-3
4059	2	11/17/2017		Naphthalene		0.9		0.2	128	91-20-3
4059	3	11/17/2017		Naphthalene		0.7		0.1	128	91-20-3
4059	4	11/17/2017		Naphthalene		2.6		0.5	128	91-20-3
4059	1	11/17/2017		Dimethylsulfide	0.03	0.01-0.06		0.01	62	75-18-3
4059	2	11/17/2017		Dimethylsulfide	0.02	0.01-0.04		0.008	62	75-18-3
4059	3	11/17/2017		Dimethylsulfide	0.03	0.01-0.06		0.01	62	75-18-3
4059	4	11/17/2017		Dimethylsulfide	0.02	0.01-0.04		0.007	62	75-18-3

Price List for Services Available From Fike Analytical Technologies

Analysis/Service	Description	Price
AirSurvey	TDT air sample; GC-MS determination of 60 compounds quantitatively and 500+ compounds semiquantitatively	$385 stand-alone $305 as add-on or post facto
IAQ Summary	TDT air sample; TVOC and TMVOC (post facto analysis is available for SmokeScan and AirSurvey)	$160 stand-alone $80 as add-on or post facto
Compound Specific	TDT air sample; determination of specific compound(s) specified by the submitter	$145 + $15 per compound
TMVOC	Total Mold Volatile Organic Compounds	$80 as add-on or post facto
FUI	Aged Feline Urine – Index	$160 stand-alone $80 as add-on or post facto
SmokeScan	Active and stale tobacco smoke – Index	$160 stand-alone $80 as add-on or post facto
FireScan	Residual odors from fires - Index	$160 stand-alone $80 as add-on or post facto
SPFScan	Thermal degradation VOCs from improperly installed Spray Polyurethane Foam (SPF); does not detect properly installed SPF – Index	$160 stand-alone $80 as add-on or post facto
Material Off Gas	Performed at the off gas conditions specified by the submitter. Sample prep includes 1-hr incubation time.	$50 Sample Prep Analysis costs same as above
Consulting relating to above analyses	Consultation on project planning and data interpretation (see below for consulting charges related to work outside of this scope)	No charge
Sampling Media	Trimatrix thermal desorption tube (refunded upon return for analysis)	$30
Particle Evaluation		
SEM-EDX	Scanning Electron Microscope – Energy Dispersive X-Ray Spectrometer analysis of particulate or other samples amenable to SEM scrutiny	Call for Quote
Legal and Custom Work		
Consulting, Non-Legal Work	Consulting beyond that normally provided in support of analytical reports; includes meeting with end clients, report writing/review, and on site visitation	$170/hr plus expenses
Consulting, Legal Work	Assistance in legal report writing, in-depth data evaluation, meeting with end users; assistance in legal work including testimony, depositions, writing legal documents, and consultation with attorneys	$270/hr plus expenses
Custom Analytical Work	Lab-scale process simulation; custom analytical setup and testing; design of custom monitoring protocol	Call for Quote

Fike Analytical Technologies, L.L.C.
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randall@reagan.com

Fike
Analytical Technologies, L.L.C.

Fike Analytical Technologies, L.L.C.
9800 Reese
Clarkston, MI 48348

Rush turnaround multipliers: same day evenings and weekends 4X; same day working hours 3X; 24 hr 2X; 48 hr 1.75X

Prices are effective February, 2018. Prices are subject to change without notice.