MARSH RISK CONSULTING

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AIR QUALITY SURVEY

NJIT
TIERNAN HALL
NEWARK, NJ
JULY 3, 2018

Therese Perrette CIH, CSP
Marsh Risk Consulting
Morristown New Jersey

MARSH

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Introduction

An air quality survey was conducted at New Jersey Institute of Technology's, Tiernan Hall building, University Heights Newark, New Jersey 07102, on July 3, 2018. Air samples were collected in the building by Therese Perrette CIH, CSP, Senior Vice President, Marsh Risk Consulting. All samples were submitted to Galson Laboratories, under strict chain of custody procedures, for analysis.

This summary report of the results presented by Galson Laboratories was prepared by Therese Perrette, CIH, CSP, of Marsh Risk Consulting.

Four air samples were collected in Tiernan Hall:

1) In the hall outside of office 480 at 11:16am
2) Inside the Physics office in the center of the main room at 11:20am
3) In the P1 elevator lobby, 4th floor at 11:28am
4) In the hall outside of room 001A at 11:40am

The weather on the date of sampling was clear with a high of 94^{0}F.

Samples were collected in minicam summa canisters and analyzed by modified OSHA PV2120/modified EPA TO15; Determination of Toxic Organic Compounds in Ambient Air, and analyzed by gas chromatography/mass spectrometry (GC/MS). Method TO-15 is used for measuring volatile organic compounds, and is a general volatile organic compound (VOC) scan. This method is the best way to sample the widest range of compounds with the greatest of ease. The analytical equipment is capable of detecting parts per trillion of many volatile organic compounds. The GC/MS instrument also makes it possible to look at 'unknown compounds' and make tentative identifications.

Discussion

The canisters were analyzed by GCMS; a library search of the NIST/EPA Mass Spectral Library, which contains nearly two hundred thousand compounds, was conducted to determine a chemicals contributing to any positive results. The chemicals that were found in indoor air were present in concentrations at very low limits. The limits were generally sufficient to detect very low concentrations, indicating that chemicals that were not detected were either not present in the indoor air samples or were present at low, but undetectable, concentrations below levels of potential health concern.

Summarized below and in the attached appendix are the analytical results for the air sample**s** collected from inside the building.

Tiernan Hall	Acetone ppm	Pentane ppm	Unknown Fluorinated Compound ppm	Acetic Acid Methyl Ester ppm	Isopropyl Alcohol ppm
OSHA PEL	1000	1000	Not specified	200	400
ACGIH TLV	250	600	Not specified	200	200
Hall outside of room 480	0.0088	nd	0.0063	nd	nd
Inside Physics office	0.001	nd	0.0067	nd	nd
P1 Elevator Lobby 4th floor	0.0099	0.020	nd	0.026	nd
Hall Outside 001A	0.014	nd	nd	nd	0.0075

Notes: nd = none detected
There was a strong odor of perfume in the Physics Office.

It is important to note that all samples were collected while there was limited occupation taking place in the building/space. Based on observation of activities during sampling, the extremely low results indicate normal office type occupation of the building/space.

The presence of acetone may be a result of several things including natural metabolic breakdown of fat, as an ingredient of nail polish and nail polish remover, colognes, air fresheners and from normal household cleaners.

The presence of pentane may be the result of the use of aerosol products such as air fresheners and perfumes.

A major use of Acetic Acid Methyl Ester (methyl acetate) is as a volatile low toxicity solvent in glues, paints, and nail polish removers. It is also found in fruits such as apples, grapes and bananas.

Isopropyl alcohol (rubbing alcohol) has numerous uses that include antibacterial first aid cleanser and disinfectant applications, as well as glue and stain removal and the cleaning of delicate electronic devices.

Fluorinated compounds constitute a diverse class of chemicals which have been globally manufactured since the 1950s and continue to be in use today. These compounds are the most commonly studied per- and polyfluoroalkyl substances (PFASs)/perfluorinated chemicals (PFCs) due to their widespread occurrence in the environment. The library search did not determine which specific fluorinated compounds were found.

The data is of sufficient quality to draw a conclusion that there is no evidence for a hazardous chemical release within the building.

APPENDIX A - Results

SGS GALSON

LELAP Lab ID #04083

LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
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FAX: (315) 437-0571
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Client : Marsh Risk Consulting
Site : NJIT
Project No. : NJIT
Date Sampled : 03-JUL-18
Date Received : 05-JUL-18

Account No.: 28089
Login No. : L448771

Date Analyzed : 09-JUL-18
Report ID : 1076721

Client ID : TIERNAN 480 **Lab ID : L448771-3**

Tentatively Identified Compounds	CAS Number	Retention Time	Estimated Concentration ppbv
Acetone	000067-64-1	5.63	8.8
Unknown Fluorinated Compound		5.85	6.3

Analytical Method: mod. OSHA PV2120/mod. EPA TO15; GC/MS
Collection Media : Mini Can
Submitted by : BLD

QC by : SAP
Approved by : SAP
Date : 10-JUL-18

Supervisor: SAP

NYS DOH # : 11626

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Report ID : 1076721

Client ID : TIERNAN PHYSICS **Lab ID : L448771-4**

Tentatively Identified Compounds	CAS Number	Retention Time	Estimated Concentration ppbv
Acetone	000067-64-1	5.61	10
Unknown Fluorinated Compound		5.85	6.7

Analytical Method: mod. OSHA PV2120/mod. EPA TO15; GC/MS
Collection Media : Mini Can
Submitted by : BLD

QC by : SAP
Approved by : SAP
Date : 10-JUL-18

Supervisor: SAP

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Report ID : 1076721

Client ID : TIERNAN P1 **Lab ID : L448771-5**

Tentatively Identified Compounds	CAS Number	Retention Time	Estimated Concentration ppbv
Acetone	000067-64-1	5.61	9.9
Pentane	000109-66-0	6.07	20
Acetic acid, methyl ester	000079-20-9	6.45	26

Analytical Method: mod. OSHA PV2120/mod. EPA TO15; GC/MS
Collection Media : Mini Can
Submitted by : BLD

QC by : SAP
Approved by : SAP
Date : 10-JUL-18

Supervisor: SAP
NYS DOH # : 11626

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Login No. : L448771

Date Analyzed : 09-JUL-18
Report ID : 1076721

Client ID : TIERNAN 001A **Lab ID : L448771-6**

Tentatively Identified Compounds	CAS Number	Retention Time	Estimated Concentration ppbv
Acetone	000067-64-1	5.62	14
Isopropyl Alcohol	000067-63-0	5.93	7.5

Analytical Method: mod. OSHA PV2120/mod. EPA TO15; GC/MS
Collection Media : Mini Can
Submitted by : BLD

QC by : SAP
Approved by : SAP
Date : 10-JUL-18

Supervisor: SAP
NYS DOH # : 11626