



ENGINEERS • PLANNERS • SCIENTISTS • CONSTRUCTION MANAGERS

936 RIDGEBROOK ROAD • SPARKS, MD 21152 • 410-316-7800 • (FAX) 410-316-7935

May 8, 2023

Mr. Brian Croyle, Environmental Specialist
Montgomery County Public Schools
Division of Sustainability and Compliance
8301 Turkey Thicket Drive
Gaithersburg, MD 20879

Ref: **Sampling for Asphalt Fumes and Hydrogen Sulfide Gas**
Poolesville High School
KCI Job No. 122302497

KCI Technologies Inc. (KCI) is submitting the following letter report detailing the findings of air sampling of Asphalt Fumes (benzene soluble fraction) and Hydrogen Sulfide gas at Poolesville High School located at 17501 W. Willard Rd. Poolesville, MD 20837 (subject site). Baseline sampling was conducted by KCI's Industrial Hygienist, Mr. Tyler McCleaf, CSP, under the oversight of KCI's Certified Industrial Hygienist (CIH), Mr. Jonathan Coale.

Background:

At Poolesville High School, current renovations and construction has raised concerns from student parents. Students and faculty have voiced concerns related to an odor present in the school while the roofing work is occurring. The parents are concerned the students are being exposed to unsafe conditions related to the asphalt fumes being produced during the roofing installation. MCPS contacted KCI to assist them in collecting data on the school's occupants' potential exposure to fumes related to the roofing work being conducted.

Description of the Work Performed:

On April 24, 2023, KCI conducted air sampling for Asphalt Fumes (benzene soluble fraction) and Hydrogen Sulfide gas levels at Poolesville High School. The sampling of Asphalt Fumes (benzene soluble fraction) was done under method: Modified NIOSH 5042. This method will determine the total concentration of total particulate and the soluble fraction to which an individual is exposed. NIOSH has an adopted value of 5 mg/m³ Threshold Limit Value (TLV) -Time-Weighted Average (TWA) for asphalt fumes. NIOSH's definition of TLV-TWA is the "concentration for a conventional 8-hour workday and a 40-hour workweek, to which it is believed that nearly all workers may be repeatedly exposed, day after day, for a working lifetime without adverse effect". KCI also utilized a multi-gas meter to collect real time readings of hydrogen sulfide (H₂S), carbon monoxide (CO), and oxygen (O₂) levels in various locations throughout the building and exterior. Direct read data was performed to collect short term "grab" samples to determine if the gas was present and was not intended to collect exposure data.

During the time of the air sampling, construction was being conducted, asphalt smell was noted outside of the building. KCI placed six (6) sampling pumps set to approximately 1 liter per minute in locations pre-determined by MCPS. It is KCI's understanding that the sample locations selected by MCPS were where complaints were made from students. After all sampling pumps were placed, KCI took real time readings of the hydrogen sulfide levels at each of these locations every 30 minutes inside and every 30 minutes

outside. A sampling location map can be found in attachment A.

While on site, KCI conducted preliminary sampling of dust particulate using a DustTrax DRX aerosol monitor. An aerosol monitor measures aerosol contaminants such as dust, smoke, fumes, and mists. KCI spot checked areas around the construction site and main school buildings during roofing and construction activities to get baseline readings of aerosol contaminants created during the activities. Locations of spot checking can be found in Attachment C.

KCI conducted area sampling from approximately 0830 until 1430. Conditions during the sampling period were clear skies and 48°- 58°F. Winds were between 5 and 10mph with gusts up to 22mph from N, NW to S, SW.

After sampling, the cassettes were sealed, logged, bagged, and shipped as required to Galson Laboratories in East Syracuse, NY, where they were analyzed for Asphalt Fume (benzene soluble fraction) Modified NIOSH Method 5042. Galson Laboratories is accredited by the American Industrial Hygiene Association (#100324).

In addition to sampling, MCPS had the onsite IH conduct a review of the barriers between the construction site and entrances to the school and to recommend additional elements to help reduce cross contamination of asphalt roofing off gassing.

Results:

Asphalt Fumes (Benzene Soluble Fraction)

Table 1 – Asphalt Fumes Sampling Summary			
Location	Sample Number	Concentration (mg/m³)	Above TLV-TWA?
Arts Hallway – Outside Room 44	PH – 01B	<0.29	No
Auditorium Lobby	PH – 02B	<0.29	No
New Gym Hallway	PH – 03B	<0.29	No
Science Building 1 st Floor – Outside Room 184	PH – 04B	<0.29	No
Science Building 2 nd Floor – Outside Room 284	PH – 05B	<0.29	No
West End of Portables – (exterior)	PH – 06B	<0.29	No
Field Blank	PH – FB	N/A	N/A
Lab Blank	PH – LB	N/A	N/A

N/A: Not Applicable

Laboratory analysis results are included as Attachment B.

Gas Meter Readings

Table 2 – Multi-Gas Meter Sampling Summary			
Time	Oxygen (O₂)	Carbon Monoxide (CO)	Hydrogen Sulfide (H₂S)
830-835	20.8	0	0
900-905	20.8	0	0
940-945	20.8	0	0
1100-1105	20.8	0	0
1132-1137	20.8	0	0

Table 2 – Multi-Gas Meter Sampling Summary			
Time	Oxygen (O₂)	Carbon Monoxide (CO)	Hydrogen Sulfide (H₂S)
1250-1255	20.8	0	0
1315-1320	20.8	0	0
1400-1405	20.8	0	0
1430-1435	20.8	0	0

Olfactory Findings

During walkthroughs, KCI noted the following asphalt smells:

Table 3 – Olfactory Investigation Summary	
Location	Findings
Exterior Outside New Main Office	No Asphalt Smell
Exterior Between Main Building & Science/Tech Addition	Weak Asphalt Smell
Exterior By Portables	No Asphalt Smell
Main Lobby	No Asphalt Smell
Art Hallway	No Asphalt Smell
Auditorium Corridor	No Asphalt Smell
Gym Hallway	No Asphalt Smell
Science and Technology Addition	No Asphalt Smell

Aerosol Monitoring Findings

Table 4 – Aerosol Monitoring Summary				
Location	Time	PM Respirable	PM 10	Concentration (mg/m³)
New Main Office - Exterior	10:00 am	0.007	0.008	0.007
	11:00 am	0.015	0.007	0.010
	01:00 pm	0.006	0.010	0.011
Hallway – Outside Room 49	10:00 am	0.046	0.098	0.168
	11:00 am	0.054	0.100	0.196
	01:00 pm	0.066	0.085	0.121
Auditorium Corridor	10:00 am	0.007	0.015	0.033
	11:00 am	0.003	0.081	0.009
	01:00 pm	0.000	0.010	0.003
Hallway – Outside Room 12	10:00 am	0.128	0.224	0.267
	11:00 am	0.091	0.211	0.300
	01:00 pm	0.145	0.176	0.288
Science/Technology Addition	10:00 am	0.079	0.143	0.361
	11:00 am	0.081	0.137	0.297
	01:00 pm	0.121	0.158	0.372
Between Main Building and Sci/Tech Add. - Exterior	10:00 am	0.034	0.066	0.187
	11:00 am	0.010	0.030	0.047
	01:00 pm	1.210	1.450	2.100
Hallway – Outside New Gym	10:00 am	0.092	0.185	0.275
	11:00 am	0.101	0.200	0.315
	01:00 pm	0.083	0.176	0.210

Table 4 – Aerosol Monitoring Summary				
Location	Time	PM Respirable	PM 10	Concentration (mg/m ³)
Portables - Exterior	10:00 am	0.004	0.008	0.006
	11:00 am	0.002	0.007	0.004
	01:00 pm	0.017	0.009	0.015
Hallway – Outside Room 14	10:00 am	0.119	0.226	0.405
	11:00 am	0.111	0.147	0.315
	01:00 pm	0.101	0.214	0.410
Hallway – Outside Cafeteria	10:00 am	0.080	0.063	0.172
	11:00 am	0.092	0.081	0.199
	01:00 pm	0.009	0.012	0.015
Staff Parking – Exterior	10:00 am	0.000	0.000	0.008
	11:00 am	0.001	0.006	0.005
	01:00 pm	0.000	0.008	0.105
Hallway – Outside Media Center	10:00 am	0.072	0.087	0.106
	11:00 am	0.081	0.011	0.121
	01:00 pm	0.073	0.002	0.010

Conclusion:

In conclusion, the baseline sampling data determined airborne Asphalt Fumes concentrations were below the NIOSH TLV-TWA adopted value during the period of sampling. In addition, H₂S and CO concentrations were not present or at concentrations below the gas meters detectable range. Oxygen levels were at the expected levels.

OSHA has a Permissible Exposure Limit (PEL) for respiratory dust not to exceed 5.0 mg/m³, during spot sampling, readings taken at the time of the survey were below the OSHA PEL. During survey, KCI noted that at 1300 between the Science/Technology building and the Main building, readings reached 2.100 mg/m³. KCI and MCPS agree that further Aerosol monitoring should be conducted at this location to gather additional data for analysis.

During sampling, asphalt roofing activities were being performed.

If you have questions or comments regarding this report, please contact me.

Sincerely,
 KCI Technologies, Inc

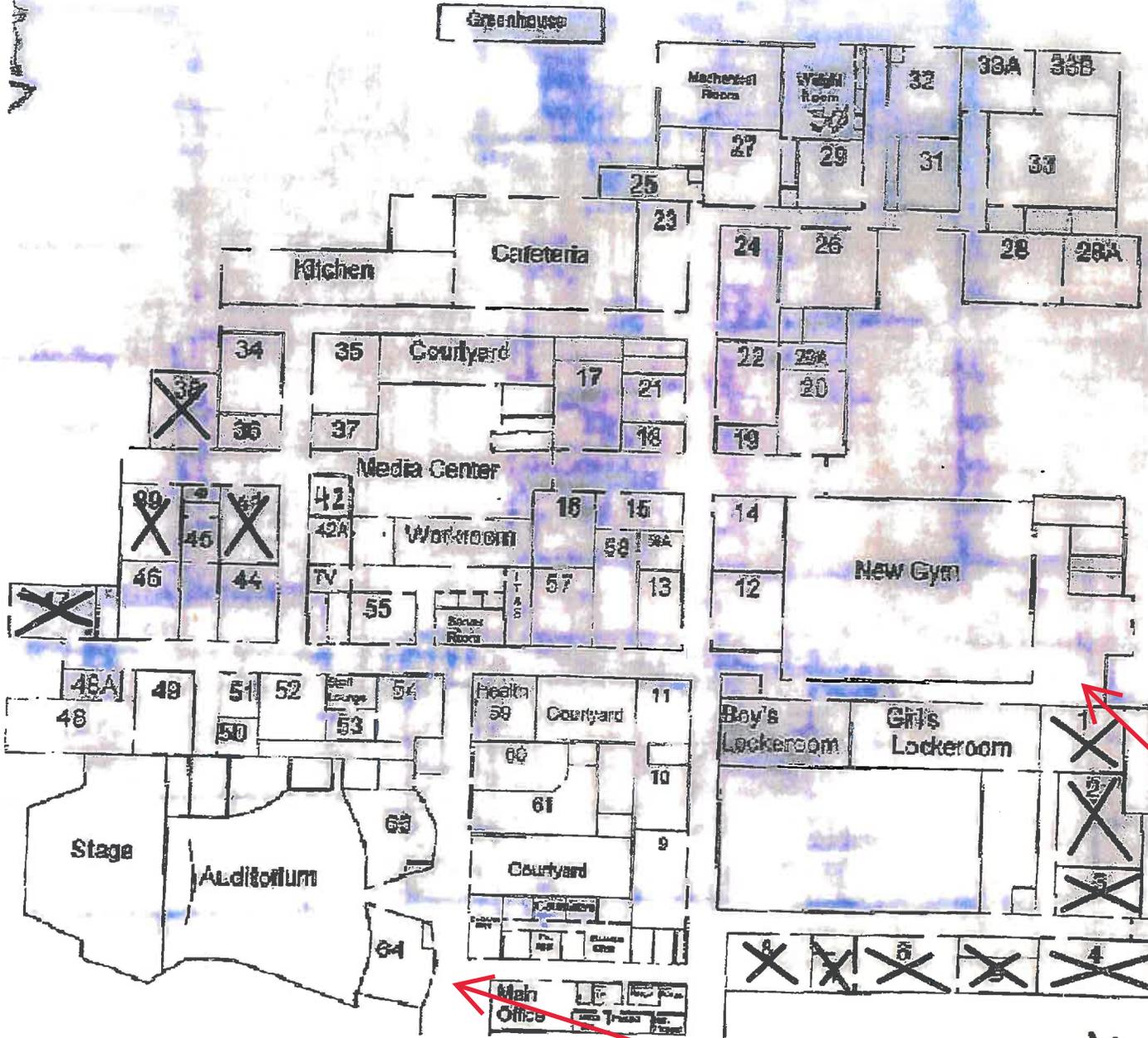


Tyler McCleaf, CSP, RMP
 Certified Safety Professional
 KCI Technologies, Inc.

Attachment A: Sample Locations
 Attachment B: Laboratory Certificate of Analysis Report for Air Samples
 Attachment C: Dust Sampling Locations

Attachment A
Sample Locations

View



P1	P6
P2	P7
P3	P8
P4	P9
P5	P10
Portables	

PH - 06B (exterior)

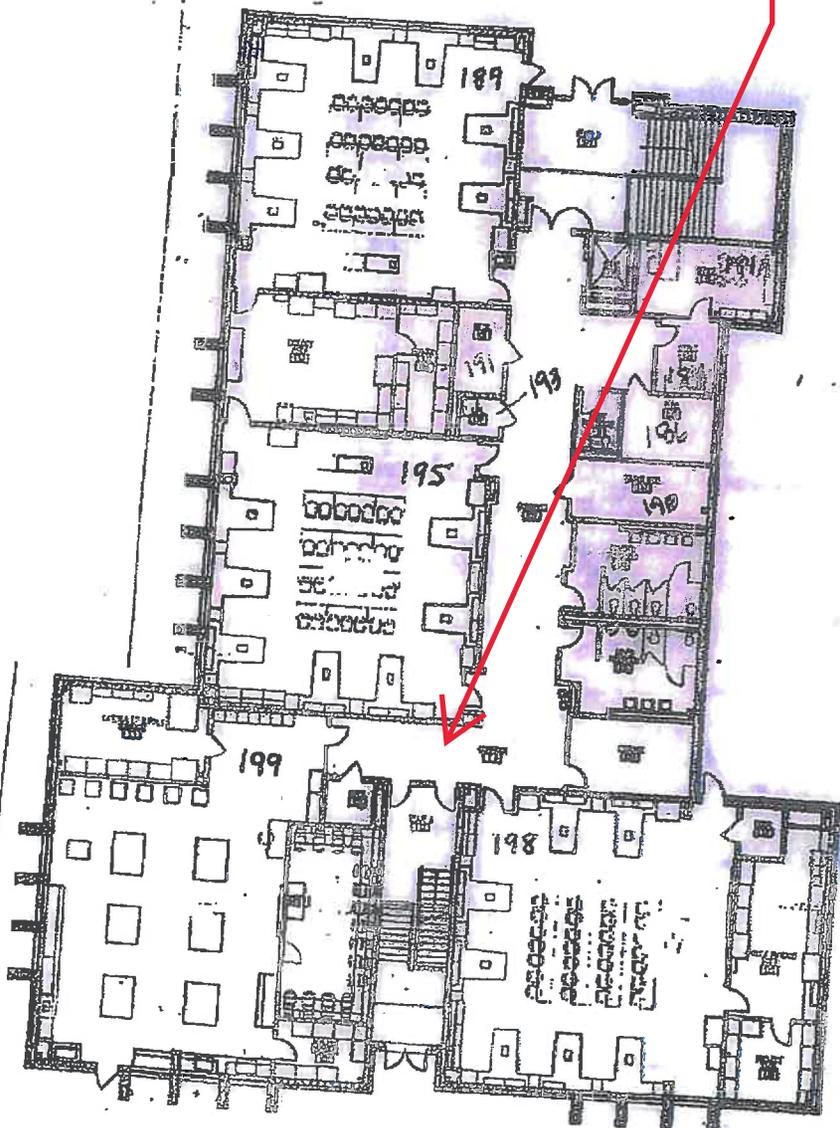
PH2 - 01B

PH - 01B

X = Room not being used

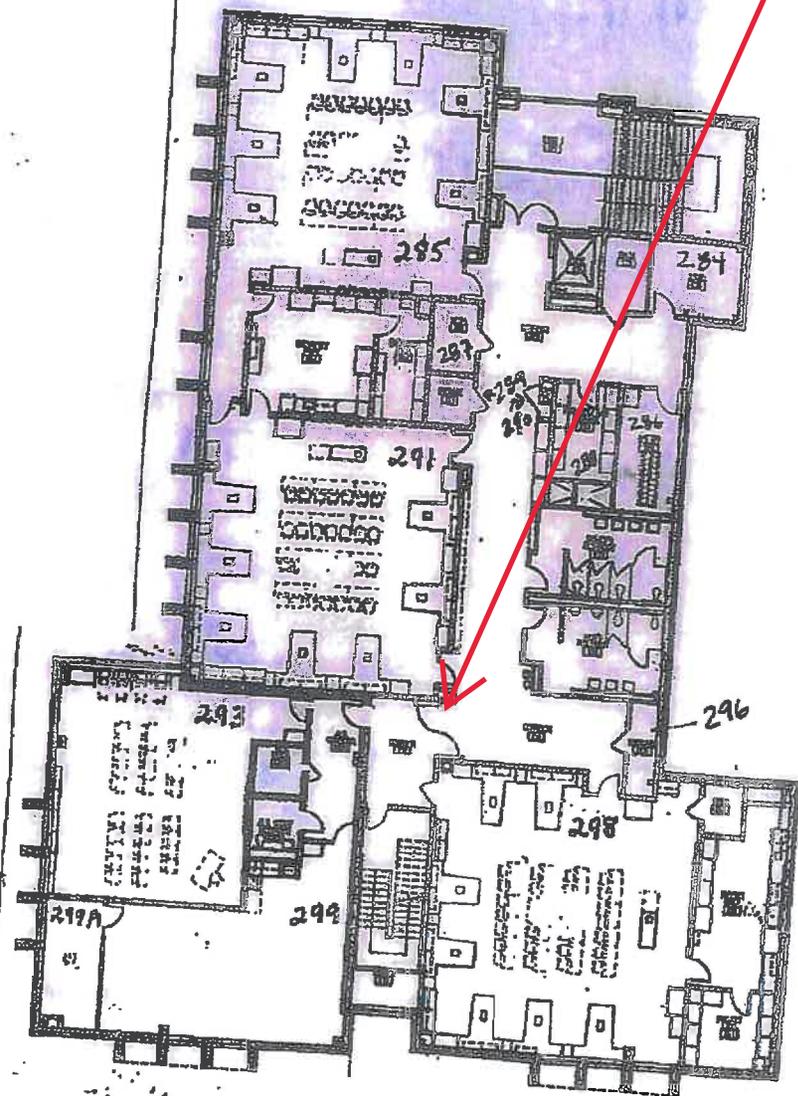
PH - 04B

PH - 05B



POOLESVILLE HIGH SCHOOL
Science/Technology Addition

FIRST FLOOR



POOLESVILLE HIGH SCHOOL
Science/Technology Addition

SECOND FLOOR

Attachment B
Laboratory Certificate of Analysis Report for Air Samples

**Jon Coale
KCI Technologies
936 Ridgebrook Road
Sparks Glencoe, MD 21152**

May 04, 2023

Account# 17844

Login# L592408

Dear Jon Coale:

Enclosed are the analytical results for the samples received by our laboratory on April 26, 2023. All samples on the chain of custody were received in good condition unless otherwise noted. Any additional observations will be noted on the chain of custody.

Please contact client services at (888) 432-5227 if you would like any additional information regarding this report. Thank you for using SGS Galson.

Sincerely,

SGS Galson



**Lisa Swab
Laboratory Director**

Enclosure(s)



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Analytical Disclaimers

- Unless otherwise noted within the report, all quality control results associated with the samples were within established control limits or did not impact reported results.
- Note: The findings recorded within this report were drawn from analysis of the sample(s) provided to the laboratory by the Client (or a third party acting at the Client’s direction). The laboratory does not have control over the sampling process, including but not limited to the use of field equipment and collection media, as well as the sampling duration, collection volume or any other collection parameter used by the Client. The findings herein constitute no warranty of the sample's representativeness of any sampled environment, and strictly relate to the samples as they were presented to the laboratory. For recommended sampling collection parameters, please refer to the Sampling and Analysis Guide at www.sgsgalson.com.
- Unrounded results are carried through the calculations that yield the final result and the final result is rounded to the number of significant figures appropriate to the accuracy of the analytical method. Please note that results appearing in the columns preceding the final result column may have been rounded and therefore, if carried through the calculations, may not yield an identical final result to the one reported.
- The stated LOQs for each analyte represent the demonstrated LOQ concentrations prior to correction for desorption efficiency (if applicable).
- Unless otherwise noted within the report, results have not been blank corrected for any field blank or method blank data.

Accreditations SGS Galson holds a variety of accreditations and recognitions. Our quality management system conforms with the requirements of ISO/IEC 17025. Where applicable, samples may also be analyzed in accordance with the requirements of ELAP, NELAC, or LELAP under one of the state accrediting bodies listed below. Current Scopes of Accreditation can be viewed at <http://www.sgsgalson.com> in the accreditations section of the "About" page. To determine if the analyte tested falls under our scope of accreditation, please visit our website or call Client Services at (888) 432-5227.

National/International	Accreditation/Recognition	Lab ID#	Program/Sector
AIHA-LAP, LLC - IHLAP, ELLAP, EMLAP	ISO/IEC 17025 and USEPA NLLAP	Lab ID 100324	Industrial Hygiene, Environmental Lead, Environmental Microbiology

State	Accreditation/Recognition	Lab ID#	Program/Sector
New York (NYSDOH)	ELAP and NELAC (TNI)	Lab ID: 11626	Air Analysis, Solid and Hazardous Waste
Louisiana (LDEQ)	LELAP	Lab ID: 04083	Air Analysis, Solid Chemical Materials

Legend

< - Less than	mg - Milligrams	MDL - Method Detection Limit	ppb - Parts per Billion
> - Greater than	ug - Micrograms	NA - Not Applicable	ppm - Parts per Million
l - Liters	m3 - Cubic Meters	NS - Not Specified	ppbv - ppb Volume
LOQ - Limit of Quantitation	kg - Kilograms	ND - Not Detected	ppmv - ppm Volume
ft2 - Square Feet	cm2 - Square Centimeters	in2 - Square Inches	ng - Nanograms



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LABORATORY ANALYSIS REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.sgsgalson.com

Client : KCI Technologies
Site : NS
Project No. : POOLESVILLE HS
Date Sampled : 24-APR-23
Date Received : 26-APR-23

Account No.: 17844
Login No. : L592408
Date Analyzed : 04-MAY-23
Report ID : 1356396

Asphalt Fumes (Benzene-Soluble Fraction)

<u>Sample ID</u>	<u>Lab ID</u>	<u>Air Vol</u> <u>liter</u>	<u>Total</u> <u>mg</u>	<u>Conc</u> <u>mg/m3</u>
PH-01B	L592408-1	345	<0.10	<0.29
PH-02B	L592408-2	343	<0.10	<0.29
PH-03B	L592408-3	342	<0.10	<0.29
PH-04B	L592408-4	342	<0.10	<0.29
PH-05B	L592408-5	342	<0.10	<0.29
PH-LB	L592408-6	NA	<0.10	NA
PH-FB	L592408-7	NA	<0.10	NA
PH-06B	L592408-8	340	<0.10	<0.29

COMMENTS: Please see attached lab footnote report for any applicable footnotes.

Level of Quantitation: 0.10 mg
Analytical Method : mod. NIOSH 5042; Gravimetric
Collection Media : PTFE PW 1u 37mm

Submitted by: PMH
Date : 04-MAY-23
Supervisor : JGC

Approved by: JGC



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LABORATORY FOOTNOTE REPORT

6601 Kirkville Road
East Syracuse, NY 13057
(315) 432-5227
FAX: (315) 437-0571
www.sgsgalson.com

Client Name : KCI Technologies
Site :
Project No. : POOLESVILLE HS

Date Sampled : 24-APR-23
Date Received: 26-APR-23
Date Analyzed: 04-MAY-23

Account No.: 17844
Login No. : L592408

L592408 (Report ID: 1356396):

SOPs: ic-asphalt(26)
BSF = Benzene Soluble Fraction

L592408 (Report ID: 1356396):

Accuracy and mean recovery data presented below is based on a 95% confidence interval (k=2). The estimated accuracy applies to the media, technology, and SOP referenced in this report and does not account for the uncertainty associated with the sampling process. The accuracy is based solely on spike recovery data from internal quality control samples. Where N/A appears below, insufficient data is available to provide statistical accuracy and mean recovery values for the associated analyte.

<u>Parameter</u>	<u>Accuracy</u>	<u>Mean Recovery</u>
Asphalt Fumes (Benzene-Soluble Fraction)	+/-15.7%	93%

771950627953
 Date: 04/26/23
 Shipper: FEDEX
 Initials: KLD



Prep: UNKNOWN

L5612408

CHAIN OF CUSTODY

16

You may edit and complete this COC electronically by logging in to your Client Portal account at <https://portal.galsonlabs.com/>

<input checked="" type="checkbox"/> Standard	0%	Client Acct No.: 17844 Report To: Jon Coale Company Name: KCI Technologies Address 1: 936 Ridgebrook Road Address 2: City, State Zip: Sparks Glencoe, MD 21152 Phone No.: 410 - 891 - 1810 Cell No.: Email reports to: Jonathan.Coale@kci.com Email EDD to: Jonathan.Coale@kci.com Comments:	Invoice To: Accounts Payable Company Name: KCI TECHNOLOGIES INC Address 1: 936 Ridgebrook Road Address 2: City, State Zip: Sparks, MD 21152 Phone No.: 410 - 316 - 0818 Email Address: ap@kci.com Comments: P.O. No.: Payment info.: <input type="checkbox"/> I will call SGS Galson to provide credit card info <input type="checkbox"/> Card on File (enter the last five digits on the line below)
<input type="checkbox"/> 4 Business Days	35%		
<input type="checkbox"/> 3 Business Days	50%		
<input type="checkbox"/> 2 Business Days	75%		
<input type="checkbox"/> Next Day by 6pm	100%		
<input type="checkbox"/> Next Day by Noon	150%		
<input type="checkbox"/> Same Day	200%		
<input type="checkbox"/> Samples submitted using the FreePumpLoan™ Program <input type="checkbox"/> Samples submitted using the FreeSamplingBadges™ Program		Original Prep No.: PSY692971-1 CS Rep: TLANCASTER Online COC No.: 269638	

Comments: Benzene Soluble only

State Sampled: MD

Please indicate which OEL(s) this data will be used for:
 OSHA PEL ACGIH TLV MSHA Cal OSHA
 IAQ: Specify Limit(s) Other: Specify Other

Site Name: Project: Poolesville HS Sampled By: Tyler McCleat

List description of industry or Process/interferences present in sampling area: Roofing / Construction

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium	Sample Volume Sample Time Sample Area *	Liters Minutes in ² , cm ² , ft ² *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
PH-01B	4/24/23	37mm 1um PW PTFE, 2pc (black band)	345	L	Asphalt Fume (as Total Dust)	mod. NIOSH 5042/MDHS 14/4; GRAV	
PH-02B	4/24/23	37mm 1um PW PTFE, 2pc (black band)	343	L	Asphalt Fume (as Total Dust)	mod. NIOSH 5042/MDHS 14/4; GRAV	

^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature	Date	Time	Print Name / Signature	Date	Time
Relinquished By:	<i>[Signature]</i>	4/26/23	11:00	Received By: Kathryn L. Drogo	4/26/23	13:03
Relinquished By:				Received By: <i>[Signature]</i>		

* You must fill in these columns for any samples which you are submitting.
 Samples received after 3pm will be considered as next day's business.

Online COC No.: 269638
 Prep No.: PSY692971-1
 Account No.: 17844
 Draft: 4/12/2023 4:13:32 PM

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CHAIN OF CUSTODY

Comments :

Sample ID * (Maximum of 20 Characters)	Date Sampled *	Collection Medium	Sample Volume Sample Time Sample Area *	Liters Minutes in ² , cm ² , ft ² *	Analysis Requested	Method Reference ^	Hexavalent Chromium Process (e.g., welding, plating, painting, etc.)
PH-03 B	4/24/23	37mm 1um PW PTFE, 2pc (black band)	342	L	Asphalt Fume (Benzene Soluble Fraction)	mod. NIOSH 5042; Gravimetric	
PH-04 B		37mm 1um PW PTFE, 2pc (black band)	342		Asphalt Fume (Benzene Soluble Fraction)	mod. NIOSH 5042; Gravimetric	
PH-05 B		37mm 1um PW PTFE, 2pc (black band)	342		Asphalt Fume (Benzene Soluble Fraction)	mod. NIOSH 5042; Gravimetric	
PH-LB		37mm 1um PW PTFE, 2pc (black band)	NA		Asphalt Fume (Benzene Soluble Fraction)	mod. NIOSH 5042; Gravimetric	
PH-FB	↓	37mm 1um PW PTFE, 2pc (black band)	NA	↓	Asphalt Fume (Benzene Soluble Fraction)	mod. NIOSH 5042; Gravimetric	
PH-06 B	H	37mm 1um PW PTFE, 2pc (black band)	340	↓	Asphalt Fume (Benzene Soluble Fraction)	mod. NIOSH 5042; Gravimetric	

^ If the method(s) indicated on the COC are not our routine/preferred method(s), we will substitute our routine/preferred methods. If this is not acceptable, check here to have us contact you.

Chain of Custody	Print Name / Signature		Date	Time	Print Name / Signature		Date	Time
Relinquished By:	T.M	Tyler Meyer	4/25/23	1100	Received By:	Kathryn L. Drogo	4/26/23	1323
Relinquished By:					Received By:	Kathryn L. Drogo		

* You must fill in these columns for any samples which you are submitting.
 Samples received after 3pm will be considered as next day's business.

Online COC No. : 269636
 Prep No. : PSY692971
 Account No. : 17844
 Draft : 4/12/2023 4:10:47 PM

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Attachment C
Dust Sample Locations

Auditorium Corridor
10:00: .007 | .015 | .033
11:00: .003 | .081 | .009
13:00: .000 | .010 | .003

49 Hallway
10:00: .046 | .098 | .168
11:00: .054 | .100 | .196
13:00: .066 | .085 | .121

Outside- Main Office
10:00: .007 | .008 | .007
11:00: .015 | .007 | .010
13:00: .006 | .010 | .011

12 Hallway
10:00: .128 | .224 | .267
11:00: .091 | .211 | .300
13:00: .145 | .176 | .288

Media Center Hallway
10:00: .072 | .087 | .106
11:00: .081 | .011 | .121
13:00: .073 | .002 | .010

Staff Parking
10:00: .000 | .000 | .008
11:00: .001 | .006 | .005
13:00: .000 | .008 | .105

Sci/Tech Lobby
10:00: .079 | .143 | .361
11:00: .081 | .137 | .291
13:00: .121 | .158 | .372

Cafeteria Hallway
10:00: .080 | .063 | .172
11:00: .092 | .081 | .199
13:00: .009 | .012 | .015

Outside- Between Main
Building and Sci/Tech Addition
10:00: .034 | .066 | .187
11:00: .010 | .030 | .047
13:00: 1.21 | 1.45 | 2.10

Gym Hallway
10:00: .092 | .185 | .275
11:00: .101 | .200 | .315
13:00: .083 | .176 | .210

14 Hallway
10:00: .119 | .226 | .405
11:00: .111 | .147 | .315
13:00: .101 | .214 | .410

Outside- Portable
10:00: .004 | .008 | .006
11:00: .002 | .007 | .004
13:00: .017 | .009 | .015

