

**Bevis Green Works (Tetrosyl)
Mill Road, Bury, BL9 6RE**

**Sub-Floor Void Vapour Risk Assessment
(Phase 2a – Plots 58, 61, 63 & 68)**

For: Barratt Homes Ltd.

June 2023

Report Ref: R2174-R14-v1

DOCUMENT CONTROL SHEET

Report Title: Bevis Green Works (Tetrosyl),
Sub-Floor Void Vapour Risk Assessment
(Phase 2a - Plots 58, 61, 63 & 68)

Client: Barratt Homes Manchester

Report Reference Number: R2174-R14

Report Status: Final

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Signed For Smith Grant LLP

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1. Introduction

- 1.1. Remediation works to prepare Phase 2a of the former Bevis Green Works, Bury site have been undertaken by Urban Regen Ltd. (URL) on behalf of Barratt Homes Manchester (BM).
- 1.2. Upon completion of the Phase 2a preparatory earthworks, third party Geo-environmental consultancy, Groundtech, carried out a post-remediation vapour monitoring exercise in this area and, as reported in their Permanent Ground Gas and VOC Vapour Risk Assessment (ref: GRO-21459-3784), elevated soil vapours were identified for a range of volatile contaminants (fractionated hydrocarbons, BTEX, naphthalene and various chlorinated hydrocarbons). A recommendation for the installation of VOC vapour protection measures in all future dwellings across the Phase 2a area was therefore made.
- 1.3. Barratt homes have now begun construction in the Phase 2a area of the site (comprising Plots 41 & 58-79) with plots 41 and 58-70 having been constructed at the time of writing. VOC protection measures have been installed by a specialist membrane installer and independently verified within all of the constructed plots.
- 1.4. To provide further reassurance of the efficiency of the vapour protection measures installed to date, specifically the sub-floor void, BM have requested that SGP undertake sub-floor VOC monitoring within selected plots to obtain additional information to confirm that the installed protection measures are sufficient to mitigate against the risk of VOC ingress before they are no longer accessible.
- 1.5. As part of a separate VOC assessment regarding Phase 1 (ref. R2174-R13-v1), sub-floor void monitoring was also undertaken within Plot 68 which is located within Phase 2a. To provide a more complete assessment regarding the protection afforded by the sub-floor voids within plots located in Phase 2a, the data obtained from Plot 68 is included within this report.

2. Description of Works

2.1. At the request of BM, SGP produced a proposed Scope of Works and Methodology for a vapour monitoring assessment of the constructed, unoccupied plots within Phase 2a (ref. R2174-L20220334) and a sub-floor vapour monitoring programme was recommended. Three plots spanning the western part of the Phase 2a development area were selected for sub-floor void monitoring (Plots 58, 61 & 63) and the following scope was adopted and implemented. The implemented scope is consistent with that which was also adopted within Plot 68.

2.2. Monitoring of target VOC concentrations within the sub-floor voids of Plots 58, 61 & 63

2.2.1. It was proposed to install vapour monitoring tubes to assess VOC concentrations within the sub-floor voids of Plots 58, 61 & 63 as these spanned the western extent of the Phase 2a development area (with respect to plots that were both constructed and unoccupied) thereby giving good coverage across this part of the site. Ultimately, this was to assess the efficiency of dilution and dispersion taking place within the sub-floor voids.

2.2.2. The monitoring of VOCs within the sub-floor void followed the methodology outlined in CL:AIRE TB16¹. A slit trench approximately 0.5m deep was excavated down the side of the plots (rear of Plots 58, 61 & 63) and a 25mm core drilled through the brickwork below ground level to allow access into the sub-floor void. Diffusion tubes supplied by Element laboratories (see Section 2.6) were secured by cable ties to steel rods which were inserted into the void spaces. The holes around the brickwork were then sealed with hydrated bentonite to provide an air-tight seal. The probes were then left in-situ for a period of 3 weeks before collection.

2.2.3. A site layout plan showing the location of the plots which were monitored is present in Figure 1 below:

¹ CL:AIRE Technical Bulletin 16 – Complete Continuous Monitoring in Underfloor Voids

Figure 1. Monitoring Location Plan



*Blue Circle = Environmental / Background Location
Orange Circles = Subfloor Void Monitoring Locations
Green Circle = Subfloor Void Monitoring (Plot 68) from previous assessment*

2.3. VOC Sampling

2.3.1. It was determined that monitoring should be completed for benzene, toluene, ethylbenzene, xylenes (BTEX), aliphatic and aromatic C5-C16 hydrocarbons (fractionated) and target list VOCs. This testing suite encompasses all of the identified volatile contaminants of concern as determined through a review of previous vapour monitoring reports.

2.3.2. There are typically two methods of VOC sampling: grab-samples which utilise bottlevac's or silocans which collect a sample at that given moment in time, or diffusion samples which collect samples over a designated time. The latter method was proposed as this allows sample collection

over diurnal changes and is more likely to record concentrations over pressure and temperature changes when VOC generation may be greatest.

2.3.3. Diffusion tubes (tenax) were provided by Element Laboratories, Deeside, deployed by SGP on 20.04.23 and left in-situ for 3 weeks before collection on 11.05.23. Analysis was scheduled for the VOC target list as described in Section 2.6.1. In total, 5 diffusion tubes were deployed, 3 as part of the VOC assessment, 1 to determine the environmental background concentrations and 1 travel blank. These are summarised in the table below and are cross-referenced to the labelling.

Table 2.1 Summary of diffusion tube locations

Location	Diffusion Tube Label
Sub-Floor Void of Plot 63	Plot 63 (VP1)
Sub-Floor Void of Plot 61	Plot 61 (VP2)
Sub-Floor Void of Plot 58	Plot 58 (VP3)
Environmental Blank (BM compound area)	Control (VP4)
Travel Blank	Blank (VP5)

2.3.4. The Environmental Sample (Atmospheric Sample) was located near the western site boundary in the current BM compound area and was secured to the site fencing. This was to obtain background concentrations for the site. A travel blank (Control) was also utilised which is a diffusion tube that remains unopened and with the sampler to identify any potential cross-contamination.

2.3.5. Representative photographs taken by SGP during the deployment of the diffusion tubes are presented in Appendix A.

3. Analysis Results

- 3.1. The methodology for deriving assessment screening criteria for health impacts from VOCs at the receptor is set out in Appendix 9 of the VOC handbook². Tolerable Daily Soil Intake values or Index Doses (for non-carcinogens and carcinogens respectively) are multiplied by the body weight (13.3 kg) and divided by the inhalation rate (8.8 m³/day) of a child receptor as defined in the most recent published UK guidance (DEFRA C4SL). Most of the substances under consideration have toxicological inhalation data published in the “LQM/CIEH S4ULs for Human Health Risk Assessment” (S4UL) - *Copyright Land Quality Management Limited reproduced with Permission* or CL:AIRE “Soil Generic Assessment Criteria for Human Health Risk Assessment”.
- 3.2. The assessment criteria are inherently conservative as they assume long-term, constant exposure of residents over 24 hr periods, 365 days a year and a continuous source which does not diminish over time. However, for the most vulnerable receptors, infants and small children, significant amounts of time spent within dwellings may be anticipated. The exception is benzene for which an air quality standard is available (5 µg/m³).
- 3.3. The methodology in the derivation of inhalation criteria values is consistent with those implemented as part of previous vapour risk assessments on the site.
- 3.4. The full laboratory analysis certificate (lab ref. 23/7429-2) is included within Appendix B. Laboratory certificate (lab ref, 23-2091) which refers to the Phase 1 assessment but also include results of subfloor concentrations within Plot 68 are also provided in Appendix B. The range of results from the diffusion of the contaminants detected are provided in the following table with comparison to the derived screening criteria. Only VOCs where concentrations are above analytical detection limits (LOD) have been listed.

Table 3.1 Summary of VOC results

Contaminant	Inhalation Health Critical Value (µg/kg.bw.day ⁻¹)	Assessment Criteria (µg/m ³)	Concentration Range (µg/m ³)	Exceedances
Benzene	1.4 (S4UL)	5	<LOD-1.01	None
Toluene	1400 (S4UL)	2,115.91	0.94-1.87	None
Ethylbenzene	74.3 (S4UL)	112.29	<LOD-1.32	None
m/p-xylene	60 (S4UL)	90.68	0.69-1.37	None
o-xylene	60 (S4UL)	90.68	<LOD-0.59	None
1,2,4-Trimethylbenzene	2 (CL:AIRE GAC)	3.02	<LOD-0.56	None
1,2,4-Trichlorobenzene	2.3 (S4UL)	3.48	<LOD-1.38	None

² CIRIA C682: The VOCs Handbook: Investigating, assessing and managing risks from inhalation of VOCs at land affected by contamination 2009

Contaminant	Inhalation Health Critical Value ($\mu\text{g/kg.bw.day}^{-1}$)	Assessment Criteria ($\mu\text{g/m}^3$)	Concentration Range ($\mu\text{g/m}^3$)	Exceedances
1,2,3-Trichlorobenzene	1 (S4UL)	1.51	<LOD-1.50	None
Styrene	240 (CL:AIRE GAC)	362.73	<LOD-1.92	None
Naphthalene	0.86 (S4UL)	1.30	<LOD-0.62	None
Hexane* (Aliphatic C6-8)	5000 (S4UL)	7556.82	0.95-1.31	None
n-butyl benzene* (Aromatic C10-12)	60 (S4UL)	90.68	<LOD-0.46	None
Aliphatic C6-C8	5000 (S4UL)	7556.82	<LOD-17.05	None
Aliphatic C8-C10	290 (S4UL)	438.30	<LOD-3.59	None
Aliphatic C10-C12	290 (S4UL)	438.30	<LOD	None
Aliphatic C12-C16	290 (S4UL)	438.30	<LOD-5.1	None
Aromatic C5-C7	As per benzene			
Aromatic C7-C8	As per toluene			
Aromatic C8-C10	60 (S4UL)	90.68	<LOD-9.03	None
Aromatic C10-C12	60 (S4UL)	90.68	<LOD-3.22	None
Aromatic C12-C16	60 (S4UL)	90.68	<LOD	None

*Contaminant specific criteria not available so adopted from relevant hydrocarbon range

3.5. Concentrations of VOCs were below the derived inhalation criteria in all instances.

4. Conclusions

- 4.1. No elevated VOCs were reported within the sub-floor voids of Plot 58, 61, 63 and 68 which suggests that efficient dilution and dispersion within the void-spaces is taking place.
- 4.2. It is also important to acknowledge the type of membrane which has been installed within the Phase 2a plots and their high-level of installation and verification. Visqueen VOC resistant membranes (Visqueen HC Blok) were installed by qualified professionals and were verified by an independent specialist who conducted air lance testing of the plots noting no failures.
- 4.3. In the totality of the evidence provided, it is demonstrated that the subfloor void is providing sufficient dilution and dispersion to reduce any residual soil VOCs to concentrations below derived inhalation criteria. The presence of the overlying slab and installed VOC resistant membrane provides a further tier or protection, and it is concluded that there is no risk to future occupants from the ingress of VOCs into the Phase 2a dwellings.
- 4.4. SGP reserves the right to alter any of the foregoing information in the event of new information being disclosed or provided and in the light of changes to legislation, guidelines and responses by the statutory and regulatory authorities.
- 4.5. This report has been prepared by Smith Grant LLP, for the sole and exclusive use of Barratt Homes Manchester, the benefit of this report may not be assigned to any third party without the prior agreement in writing of Smith Grant LLP. Reasonable skill, care and diligence has been exercised within the timescale and budget available, and in accordance with the technical requirements of the brief. Notwithstanding the efforts made by the professional team in undertaking the assessment and preparing this report, it is possible that other ground conditions and contamination as yet undetected may exist. Reliance on the findings of this report must therefore be limited accordingly. Such reliance must be based on the whole report and not on extracts which may lead to incomplete or incorrect conclusions when taken out of context.

APPENDIX A

Site Photographs

1.



Plot 63 (VP1) sub-floor void installation location

2.



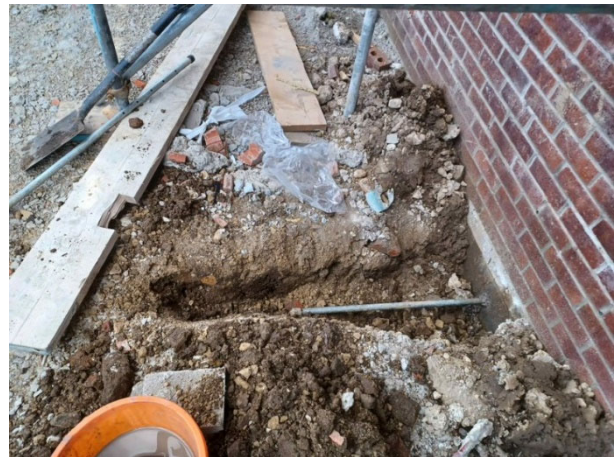
Plot 63 (VP1) sub-floor void installation

3.



Plot 61 (VP2) sub-floor void installation location

4.



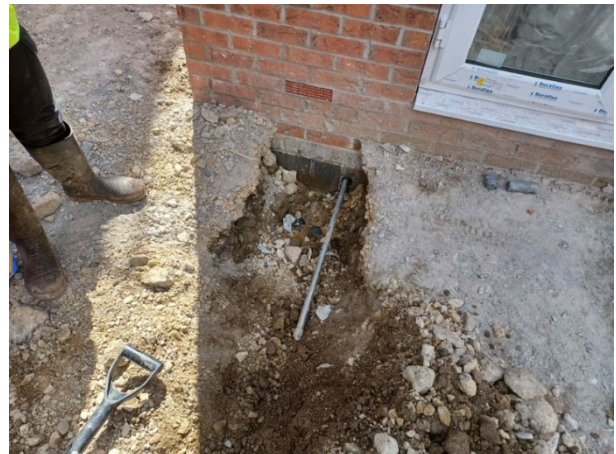
Plot 61 (VP2) sub-floor void installation

5.



Plot 58 (VP3) sub-floor void installation location

6.



Plot 58 (VP2) sub-floor void installation

7.



Control (VP4) installation location

8.



Control (VP4) installation

APPENDIX B

Laboratory Analysis Certificates

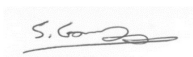
GeoEngineer Ltd
738 Burnley Road
Todmorden
OL14 8LF



Attention : Ben Crowther
Date : 21st February 2023
Your reference :
Our reference : 23/2091
Location : Bury
Date samples received : 10th February 2023
Status : Final Report
Issue : 1

5 samples were received for analysis on 10th February 2023 of which 5 were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

Authorised By:



Simon Gomery BSc
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: GeoEngineer Ltd

Reference:

Location: Bury

Contact: Ben Crowther

Date of Receipt: 10/02/23

Date Analysed: 17/02/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Plot 68 SFV

Volume Sampled by Client -

EMT Job No: 23/2091

EMT Sample No: 1

Matrix: Tenax Tube

Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 19/01/2023 10:15 Date:Hours:Mins

Sample Stop Time 10/02/2023 11:45 Date:Hours:Mins

Sample Duration 31,770 Total Minutes

Tube Serial number: 771375

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria

>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit

ISO 17025 (UKAS) accredited

(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate* ng/ppm/min	RESULT ng/tube	Concentration in Air ppb	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
60-29-7	Diethyl ether [#]		2	<5	<0.08	<5	<0.08		
156-60-5	trans-1,2-dichloroethene		2	<90	<1.42	<90	<1.42		
1634-04-4	MTBE		2	<90	<1.42	<90	<1.42		
110-54-3	Hexane [#]		2	<10	<0.16	<10	<0.16		
126-98-7	Methyl acrylonitrile		2	<90	<1.42	<90	<1.42		
156-59-2	cis-1,2-dichloroethene		2	<90	<1.42	<90	<1.42		
594-20-7	2,2-Dichloropropane		2	<90	<1.42	<90	<1.42		
67-66-3	Chloroform		2	<90	<1.42	<90	<1.42		
109-99-9	Tetrahydrofuran		2	<90	<1.42	<90	<1.42		
71-55-6	1,1,1-Trichloroethane		2	<90	<1.42	<90	<1.42		
109-69-3	1-Chlorobutane [#]		2	<5	<0.08	<5	<0.08		
71-43-2	Benzene [#]		0.7	7	0.31	<5	<0.22	1.01	<0.72
563-58-6	1,1-Dichloropropene [#]		2	<5	<0.08	<5	<0.08		
56-23-5	Carbon Tetrachloride		2	<90	<1.42	<90	<1.42		
107-14-2	Chloroacetonitrile [#]		2	<90	<1.42	<90	<1.42		
79-01-6	Trichloroethene [#] (TCE)		2	<5	<0.08	<5	<0.08		
74-95-3	Dibromomethane [#]		2	<5	<0.08	<5	<0.08		
80-62-6	Methyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
75-27-4	Bromodichloromethane [#]		2	<5	<0.08	<5	<0.08		
10061-01-5	cis-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
108-88-3	Toluene [#]		1.03	11	0.34	<5	<0.15	1.28	<0.58
10061-02-6	trans-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
79-00-5	1,1,2-Trichloroethane [#]		2	<5	<0.08	<5	<0.08		
142-28-9	1,3-Dichloropropane [#]		2	<5	<0.08	<5	<0.08		
97-63-2	Ethyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
124-48-1	Dibromochloromethane [#]		2	<5	<0.08	<5	<0.08		
106-93-4	1,2-Dibromoethane [#]		2	<10	<0.16	<10	<0.16		
127-18-4	Tetrachloroethene [#] (PCE)		2.8	<5	<0.06	<5	<0.06		
108-90-7	Chlorobenzene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Element Materials Technology

Client Name: GeoEngineer Ltd
Reference:
Location: Bury
Contact: Ben Crowther

Date of Receipt: 10/02/23

Date Analysed: 17/02/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Plot 68 SFV
Volume Sampled by Client: -
EMT Job No: 23/2091
EMT Sample No: 1
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 19/01/2023 10:15 Date:Hours:Mins
Sample Stop Time 10/02/2023 11:45 Date:Hours:Mins
Sample Duration 31,770 Total Minutes

Tube Serial number: 771375

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
ISO 17025 (UKAS) accredited
 (NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate*	RESULT	Concentration in Air	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
			ng/ppm/min		ppb				
630-20-6	1,1,1,2-tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
100-41-4	Ethylbenzene [#]		2	<5	<0.08	<5	<0.08		
179601-23-1	M/Pxylene [#]		1.46	11	0.24	<5	<0.11	1.03	<0.47
75-25-2	Bromoform [#]		2	<5	<0.08	<5	<0.08		
100-42-5	Styrene [#]		2.4	<5	<0.07	<5	<0.07		
95-47-6	o-Xylene [#]		1.46	<5	<0.11	<5	<0.11		
79-34-5	1,1,2,2-Tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-18-4	1,2,3-Trichloropropane [#]		2	<5	<0.08	<5	<0.08		
98-82-8	Isopropylbenzene [#]		2.5	<5	<0.06	<5	<0.06		
110-57-6	trans-1,4-dichloro-2-butene [#]		2	<10	<0.16	<10	<0.16		
108-86-1	Bromobenzene [#]		3.31	<5	<0.05	<5	<0.05		
95-49-8	2-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
103-65-1	Propyl benzene [#]		2.37	<5	<0.07	<5	<0.07		
106-43-4	4-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
108-67-8	1,3,5-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
98-06-6	tert-Butyl benzene [#]		2	<5	<0.08	<5	<0.08		
95-63-6	1,2,4-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
541-73-1	1,3-Dichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
135-98-8	sec-Butylbenzene [#]		2	<5	<0.08	<5	<0.08		
106-46-7	1,4-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
99-87-6	4-Isopropyltoluene [#]		2	<5	<0.08	<5	<0.08		
95-50-1	1,2-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
104-51-8	n-butyl benzene [#]		2	<5	<0.08	<5	<0.08		
67-72-1	Hexachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-12-8	1,2-dibromo-3-chloropropane [#]		2	<10	<0.16	<10	<0.16		
98-95-3	Nitrobenzene [#]		2	<10	<0.16	<10	<0.16		
120-82-1	1,2,4-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
91-20-3	Naphthalene [#]		2.55	<5	<0.06	<5	<0.06		
87-61-6	1,2,3-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
87-68-3	Hexachlorobutadiene [#]		3.5	<5	<0.04	<5	<0.04		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Client Name:	GeoEngineer Ltd
Reference:	
Location:	Bury
Contact:	Ben Crowther
Sample ID:	Plot 68 SFV
EMT Job No:	23/2091
EMT Sample No:	1
Matrix:	Tenax Tube
Tube Serial number:	771375
Method:	VOCs by Thermal Desorption (GC-MS)

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Date:Hours:Mins
Date:Hours:Mins
Total Minutes

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
#	ISO 17025 (UKAS) accredited

[illegible]

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Element Materials Technology

Client Name: GeoEngineer Ltd

Reference:

Location: Bury

Contact: Ben Crowther

Date of Receipt: 10/02/23

Date Analysed: 17/02/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Bury Plot 45

Volume Sampled by Client

EMT Job No: 23/2091

EMT Sample No: 2

Matrix: Tenax Tube

Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 19/01/2023 10:20 Date:Hours:Mins

Sample Stop Time 10/02/2023 11:50 Date:Hours:Mins

Sample Duration 31,770 Total Minutes

Tube Serial number: 776585

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria

>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit

ISO 17025 (UKAS) accredited

(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate* ng/ppm/min	RESULT ng/tube	Concentration in Air ppb	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
60-29-7	Diethyl ether [#]		2	<5	<0.08	<5	<0.08		
156-60-5	trans-1,2-dichloroethene		2	<90	<1.42	<90	<1.42		
1634-04-4	MTBE		2	<90	<1.42	<90	<1.42		
110-54-3	Hexane [#]		2	<10	<0.16	<10	<0.16		
126-98-7	Methyl acrylonitrile		2	<90	<1.42	<90	<1.42		
156-59-2	cis-1,2-dichloroethene		2	<90	<1.42	<90	<1.42		
594-20-7	2,2-Dichloropropane		2	<90	<1.42	<90	<1.42		
67-66-3	Chloroform		2	<90	<1.42	<90	<1.42		
109-99-9	Tetrahydrofuran		2	<90	<1.42	<90	<1.42		
71-55-6	1,1,1-Trichloroethane		2	<90	<1.42	<90	<1.42		
109-69-3	1-Chlorobutane [#]		2	<5	<0.08	<5	<0.08		
71-43-2	Benzene [#]		0.7	<5	<0.22	<5	<0.22		
563-58-6	1,1-Dichloropropene [#]		2	<5	<0.08	<5	<0.08		
56-23-5	Carbon Tetrachloride		2	<90	<1.42	<90	<1.42		
107-14-2	Chloroacetonitrile [#]		2	<90	<1.42	<90	<1.42		
79-01-6	Trichloroethene [#] (TCE)		2	<5	<0.08	<5	<0.08		
74-95-3	Dibromomethane [#]		2	<5	<0.08	<5	<0.08		
80-62-6	Methyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
75-27-4	Bromodichloromethane [#]		2	<5	<0.08	<5	<0.08		
10061-01-5	cis-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
108-88-3	Toluene [#]		1.03	13	0.40	<5	<0.15	1.51	<0.58
10061-02-6	trans-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
79-00-5	1,1,2-Trichloroethane [#]		2	<5	<0.08	<5	<0.08		
142-28-9	1,3-Dichloropropane [#]		2	<5	<0.08	<5	<0.08		
97-63-2	Ethyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
124-48-1	Dibromochloromethane [#]		2	<5	<0.08	<5	<0.08		
106-93-4	1,2-Dibromoethane [#]		2	<10	<0.16	<10	<0.16		
127-18-4	Tetrachloroethene [#] (PCE)		2.8	<5	<0.06	<5	<0.06		
108-90-7	Chlorobenzene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Element Materials Technology

Client Name: GeoEngineer Ltd
Reference:
Location: Bury
Contact: Ben Crowther

Date of Receipt: 10/02/23

Date Analysed: 17/02/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Bury Plot 45
Volume Sampled by Client: -
EMT Job No: 23/2091
EMT Sample No: 2
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 19/01/2023 10:20 Date:Hours:Mins
Sample Stop Time 10/02/2023 11:50 Date:Hours:Mins
Sample Duration 31,770 Total Minutes

Tube Serial number: 776585

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
ISO 17025 (UKAS) accredited
 (NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate*	RESULT	Concentration in Air	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
			ng/ppm/min		ppb				
630-20-6	1,1,1,2-tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
100-41-4	Ethylbenzene [#]		2	<5	<0.08	<5	<0.08		
179601-23-1	M/Pxylene [#]		1.46	8	0.17	<5	<0.11	0.75	<0.47
75-25-2	Bromoform [#]		2	<5	<0.08	<5	<0.08		
100-42-5	Styrene [#]		2.4	<5	<0.07	<5	<0.07		
95-47-6	o-Xylene [#]		1.46	<5	<0.11	<5	<0.11		
79-34-5	1,1,2,2-Tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-18-4	1,2,3-Trichloropropane [#]		2	<5	<0.08	<5	<0.08		
98-82-8	Isopropylbenzene [#]		2.5	<5	<0.06	<5	<0.06		
110-57-6	trans-1,4-dichloro-2-butene [#]		2	<10	<0.16	<10	<0.16		
108-86-1	Bromobenzene [#]		3.31	<5	<0.05	<5	<0.05		
95-49-8	2-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
103-65-1	Propyl benzene [#]		2.37	<5	<0.07	<5	<0.07		
106-43-4	4-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
108-67-8	1,3,5-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
98-06-6	tert-Butyl benzene [#]		2	<5	<0.08	<5	<0.08		
95-63-6	1,2,4-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
541-73-1	1,3-Dichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
135-98-8	sec-Butylbenzene [#]		2	<5	<0.08	<5	<0.08		
106-46-7	1,4-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
99-87-6	4-Isopropyltoluene [#]		2	<5	<0.08	<5	<0.08		
95-50-1	1,2-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
104-51-8	n-butyl benzene [#]		2	<5	<0.08	<5	<0.08		
67-72-1	Hexachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-12-8	1,2-dibromo-3-chloropropane [#]		2	<10	<0.16	<10	<0.16		
98-95-3	Nitrobenzene [#]		2	<10	<0.16	<10	<0.16		
120-82-1	1,2,4-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
91-20-3	Naphthalene [#]		2.55	<5	<0.06	<5	<0.06		
87-61-6	1,2,3-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
87-68-3	Hexachlorobutadiene [#]		3.5	<5	<0.04	<5	<0.04		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Client Name:	GeoEngineeer Ltd
Reference:	
Location:	Bury
Contact:	Ben Crowther
Sample ID:	Bury Plot 45
EMT Job No:	23/2091
EMT Sample No:	2
Matrix:	Tenax Tube
Tube Serial number:	776585
Method:	VOCs by Thermal Desorption (GC-MS)

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Volume Sampled by Client: Passive Sample		
Sample Start Time	19/01/2023 10:20	Date:Hours:Mins
Sample Stop Time	10/02/2023 11:50	Date:Hours:Mins
Sample Duration	31,770	Total Minutes

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
#	ISO 17025 (UKAS) accredited

[illegible]

ns= Not Specified

Element Materials Technology

Client Name: GeoEngineer Ltd

Reference:

Location: Bury

Contact: Ben Crowther

Date of Receipt: 10/02/23

Date Analysed: 17/02/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Internal House

Volume Sampled by Client -

EMT Job No: 23/2091

EMT Sample No: 3

Matrix: Tenax Tube

Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 19/01/2023 10:25 Date:Hours:Mins

Sample Stop Time 10/02/2023 11:55 Date:Hours:Mins

Sample Duration 31,770 Total Minutes

Tube Serial number: 776586

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria

>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit

ISO 17025 (UKAS) accredited

(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate* ng/ppm/min	RESULT ng/tube	Concentration in Air ppb	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
60-29-7	Diethyl ether [#]		2	<5	<0.08	<5	<0.08		
156-60-5	trans-1,2-dichloroethene		2	<90	<1.42	<90	<1.42		
1634-04-4	MTBE		2	<90	<1.42	<90	<1.42		
110-54-3	Hexane [#]		2	99	1.56	<10	<0.16	5.50	<0.56
126-98-7	Methyl acrylonitrile		2	<90	<1.42	<90	<1.42		
156-59-2	cis-1,2-dichloroethene		2	<90	<1.42	<90	<1.42		
594-20-7	2,2-Dichloropropane		2	<90	<1.42	<90	<1.42		
67-66-3	Chloroform		2	<90	<1.42	<90	<1.42		
109-99-9	Tetrahydrofuran		2	<90	<1.42	<90	<1.42		
71-55-6	1,1,1-Trichloroethane		2	<90	<1.42	<90	<1.42		
109-69-3	1-Chlorobutane [#]		2	<5	<0.08	<5	<0.08		
71-43-2	Benzene [#]		0.7	12	0.54	<5	<0.22	1.73	<0.72
563-58-6	1,1-Dichloropropene [#]		2	<5	<0.08	<5	<0.08		
56-23-5	Carbon Tetrachloride		2	<90	<1.42	<90	<1.42		
107-14-2	Chloroacetonitrile [#]		2	<90	<1.42	<90	<1.42		
79-01-6	Trichloroethene [#] (TCE)		2	<5	<0.08	<5	<0.08		
74-95-3	Dibromomethane [#]		2	<5	<0.08	<5	<0.08		
80-62-6	Methyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
75-27-4	Bromodichloromethane [#]		2	<5	<0.08	<5	<0.08		
10061-01-5	cis-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
108-88-3	Toluene [#]		1.03	95	2.90	<5	<0.15	11.03	<0.58
10061-02-6	trans-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
79-00-5	1,1,2-Trichloroethane [#]		2	<5	<0.08	<5	<0.08		
142-28-9	1,3-Dichloropropane [#]		2	<5	<0.08	<5	<0.08		
97-63-2	Ethyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
124-48-1	Dibromochloromethane [#]		2	<5	<0.08	<5	<0.08		
106-93-4	1,2-Dibromoethane [#]		2	<10	<0.16	<10	<0.16		
127-18-4	Tetrachloroethene [#] (PCE)		2.8	<5	<0.06	<5	<0.06		
108-90-7	Chlorobenzene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Element Materials Technology

Client Name: GeoEngineer Ltd
Reference:
Location: Bury
Contact: Ben Crowther

Date of Receipt: 10/02/23

Date Analysed: 17/02/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Internal House
Volume Sampled by Client: -
EMT Job No: 23/2091
EMT Sample No: 3
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 19/01/2023 10:25 Date:Hours:Mins
Sample Stop Time 10/02/2023 11:55 Date:Hours:Mins
Sample Duration 31,770 Total Minutes

Tube Serial number: 776586

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
ISO 17025 (UKAS) accredited
(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate*	RESULT	Concentration in Air	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
			ng/ppm/min		ppb				
630-20-6	1,1,1,2-tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
100-41-4	Ethylbenzene [#]		2	15	0.24	<5	<0.08	1.02	<0.34
179601-23-1	M/Pxylene [#]		1.46	44	0.95	<5	<0.11	4.11	<0.47
75-25-2	Bromoform [#]		2	<5	<0.08	<5	<0.08		
100-42-5	Styrene [#]		2.4	112	1.47	<5	<0.07	6.27	<0.28
95-47-6	o-Xylene [#]		1.46	17	0.37	<5	<0.11	1.59	<0.47
79-34-5	1,1,2,2-Tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-18-4	1,2,3-Trichloropropane [#]		2	<5	<0.08	<5	<0.08		
98-82-8	Isopropylbenzene [#]		2.5	<5	<0.06	<5	<0.06		
110-57-6	trans-1,4-dichloro-2-butene [#]		2	<10	<0.16	<10	<0.16		
108-86-1	Bromobenzene [#]		3.31	<5	<0.05	<5	<0.05		
95-49-8	2-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
103-65-1	Propyl benzene [#]		2.37	<5	<0.07	<5	<0.07		
106-43-4	4-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
108-67-8	1,3,5-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
98-06-6	tert-Butyl benzene [#]		2	<5	<0.08	<5	<0.08		
95-63-6	1,2,4-Trimethylbenzene [#]		2.37	21	0.28	<5	<0.07	1.37	<0.33
541-73-1	1,3-Dichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
135-98-8	sec-Butylbenzene [#]		2	<5	<0.08	<5	<0.08		
106-46-7	1,4-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
99-87-6	4-Isopropyltoluene [#]		2	25	0.39	<5	<0.08	2.20	<0.44
95-50-1	1,2-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
104-51-8	n-butyl benzene [#]		2	<5	<0.08	<5	<0.08		
67-72-1	Hexachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-12-8	1,2-dibromo-3-chloropropane [#]		2	<10	<0.16	<10	<0.16		
98-95-3	Nitrobenzene [#]		2	<10	<0.16	<10	<0.16		
120-82-1	1,2,4-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
91-20-3	Naphthalene [#]		2.55	5	0.06	<5	<0.06	0.33	<0.33
87-61-6	1,2,3-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
87-68-3	Hexachlorobutadiene [#]		3.5	<5	<0.04	<5	<0.04		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Element Materials Technology

Client Name: GeoEngineer Ltd

Reference:

Location: Bury

Contact: Ben Crowther

Date of Receipt: 10/02/23

Date Analysed: 17/02/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Control

Volume Sampled by Client -

EMT Job No: 23/2091

EMT Sample No: 4

Matrix: Tenax Tube

Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 19/01/2023 10:15 Date:Hours:Mins

Sample Stop Time 10/02/2023 12:00 Date:Hours:Mins

Sample Duration 31,785 Total Minutes

Tube Serial number: 246821

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
ISO 17025 (UKAS) accredited
(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate* ng/ppm/min	RESULT ng/tube	Concentration in Air ppb	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
60-29-7	Diethyl ether [#]		2	<5	<0.08	<5	<0.08		
156-60-5	trans-1,2-dichloroethene		2	<90	<1.42	<90	<1.42		
1634-04-4	MTBE		2	<90	<1.42	<90	<1.42		
110-54-3	Hexane [#]		2	707	11.12	<10	<0.16	39.26	<0.56
126-98-7	Methyl acrylonitrile		2	<90	<1.42	<90	<1.42		
156-59-2	cis-1,2-dichloroethene		2	<90	<1.42	<90	<1.42		
594-20-7	2,2-Dichloropropane		2	<90	<1.42	<90	<1.42		
67-66-3	Chloroform		2	<90	<1.42	<90	<1.42		
109-99-9	Tetrahydrofuran		2	<90	<1.42	<90	<1.42		
71-55-6	1,1,1-Trichloroethane		2	<90	<1.42	<90	<1.42		
109-69-3	1-Chlorobutane [#]		2	<5	<0.08	<5	<0.08		
71-43-2	Benzene [#]		0.7	571	25.66	<5	<0.22	82.12	<0.72
563-58-6	1,1-Dichloropropene [#]		2	<5	<0.08	<5	<0.08		
56-23-5	Carbon Tetrachloride		2	<90	<1.42	<90	<1.42		
107-14-2	Chloroacetonitrile [#]		2	<90	<1.42	<90	<1.42		
79-01-6	Trichloroethene [#] (TCE)		2	<5	<0.08	<5	<0.08		
74-95-3	Dibromomethane [#]		2	<5	<0.08	<5	<0.08		
80-62-6	Methyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
75-27-4	Bromodichloromethane [#]		2	<5	<0.08	<5	<0.08		
10061-01-5	cis-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
108-88-3	Toluene [#]	>>	1.03	4887	149.27	<5	<0.15	567.24	<0.58
10061-02-6	trans-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
79-00-5	1,1,2-Trichloroethane [#]		2	<5	<0.08	<5	<0.08		
142-28-9	1,3-Dichloropropane [#]		2	<5	<0.08	<5	<0.08		
97-63-2	Ethyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
124-48-1	Dibromochloromethane [#]		2	<5	<0.08	<5	<0.08		
106-93-4	1,2-Dibromoethane [#]		2	<10	<0.16	<10	<0.16		
127-18-4	Tetrachloroethene [#] (PCE)		2.8	<5	<0.06	<5	<0.06		
108-90-7	Chlorobenzene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Element Materials Technology

Client Name: GeoEngineer Ltd
Reference:

Location: Bury

Contact: Ben Crowther

Date of Receipt: 10/02/23

Date Analysed: 17/02/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Control
Volume Sampled by Client: -
EMT Job No: 23/2091
EMT Sample No: 4
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 19/01/2023 10:15 Date:Hours:Mins
Sample Stop Time 10/02/2023 12:00 Date:Hours:Mins
Sample Duration 31,785 Total Minutes

Tube Serial number: 246821

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
ISO 17025 (UKAS) accredited
(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate*	RESULT	Concentration in Air	MDL	MDL	Concentration	MDL
			ng/ppm/min		ppb			ug/m ³	
630-20-6	1,1,1,2-tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
100-41-4	Ethylbenzene [#]	>>	2	1975	31.07	<5	<0.08	134.52	<0.34
179601-23-1	M/Pxylene [#]	>>	1.46	6628	142.83	<5	<0.11	618.44	<0.47
75-25-2	Bromoform [#]		2	<5	<0.08	<5	<0.08		
100-42-5	Styrene [#]		2.4	18	0.24	<5	<0.07	1.01	<0.28
95-47-6	o-Xylene [#]	>>	1.46	3194	68.83	<5	<0.11	298.02	<0.47
79-34-5	1,1,2,2-Tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-18-4	1,2,3-Trichloropropane [#]		2	<5	<0.08	<5	<0.08		
98-82-8	Isopropylbenzene [#]		2.5	311	3.91	<5	<0.06	19.57	<0.31
110-57-6	trans-1,4-dichloro-2-butene [#]		2	<10	<0.16	<10	<0.16		
108-86-1	Bromobenzene [#]		3.31	<5	<0.05	<5	<0.05		
95-49-8	2-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
103-65-1	Propyl benzene [#]	>>	2.37	1059	14.06	<5	<0.07	70.29	<0.33
106-43-4	4-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
108-67-8	1,3,5-Trimethylbenzene [#]	>>	2.37	1611	21.39	<5	<0.07	104.79	<0.33
98-06-6	tert-Butyl benzene [#]		2	<5	<0.08	<5	<0.08		
95-63-6	1,2,4-Trimethylbenzene [#]	>>	2.37	5177	68.72	<5	<0.07	336.75	<0.33
541-73-1	1,3-Dichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
135-98-8	sec-Butylbenzene [#]		2	61	0.96	<5	<0.08	5.35	<0.44
106-46-7	1,4-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
99-87-6	4-Isopropyltoluene [#]		2	<5	<0.08	<5	<0.08		
95-50-1	1,2-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
104-51-8	n-butyl benzene [#]		2	148	2.33	<5	<0.08	12.99	<0.44
67-72-1	Hexachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-12-8	1,2-dibromo-3-chloropropane [#]		2	<10	<0.16	<10	<0.16		
98-95-3	Nitrobenzene [#]		2	<10	<0.16	<10	<0.16		
120-82-1	1,2,4-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
91-20-3	Naphthalene [#]		2.55	103	1.27	<5	<0.06	6.75	<0.33
87-61-6	1,2,3-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
87-68-3	Hexachlorobutadiene [#]		3.5	<5	<0.04	<5	<0.04		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Element Materials Technology

Client Name: GeoEngineer Ltd

Reference:

Location: Bury

Contact: Ben Crowther

Date of Receipt: 10/02/23

Date Analysed: 17/02/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Atmospheric Sample (Fence Line)

Volume Sampled by Client

EMT Job No: 23/2091

EMT Sample No: 5

Matrix: Tenax Tube

Method: VOCs by Thermal Desorption (GC-MS)

Tube Serial number: 435928

Volume Sampled by Client: Passive Sample

Sample Start Time 19/01/2023 10:30 Date:Hours:Mins

Sample Stop Time 10/02/2023 12:00 Date:Hours:Mins

Sample Duration 31,770 Total Minutes

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria

>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit

ISO 17025 (UKAS) accredited

(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate* ng/ppm/min	RESULT ng/tube	Concentration in Air ppb	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
60-29-7	Diethyl ether [#]		2	<5	<0.08	<5	<0.08		
156-60-5	trans-1,2-dichloroethene		2	<90	<1.42	<90	<1.42		
1634-04-4	MTBE		2	<90	<1.42	<90	<1.42		
110-54-3	Hexane [#]		2	<10	<0.16	<10	<0.16		
126-98-7	Methyl acrylonitrile		2	<90	<1.42	<90	<1.42		
156-59-2	cis-1,2-dichloroethene		2	<90	<1.42	<90	<1.42		
594-20-7	2,2-Dichloropropane		2	<90	<1.42	<90	<1.42		
67-66-3	Chloroform		2	<90	<1.42	<90	<1.42		
109-99-9	Tetrahydrofuran		2	<90	<1.42	<90	<1.42		
71-55-6	1,1,1-Trichloroethane		2	<90	<1.42	<90	<1.42		
109-69-3	1-Chlorobutane [#]		2	<5	<0.08	<5	<0.08		
71-43-2	Benzene [#]		0.7	6	0.27	<5	<0.22	0.86	<0.72
563-58-6	1,1-Dichloropropene [#]		2	<5	<0.08	<5	<0.08		
56-23-5	Carbon Tetrachloride		2	<90	<1.42	<90	<1.42		
107-14-2	Chloroacetonitrile [#]		2	<90	<1.42	<90	<1.42		
79-01-6	Trichloroethene [#] (TCE)		2	<5	<0.08	<5	<0.08		
74-95-3	Dibromomethane [#]		2	<5	<0.08	<5	<0.08		
80-62-6	Methyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
75-27-4	Bromodichloromethane [#]		2	<5	<0.08	<5	<0.08		
10061-01-5	cis-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
108-88-3	Toluene [#]		1.03	18	0.55	<5	<0.15	2.09	<0.58
10061-02-6	trans-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
79-00-5	1,1,2-Trichloroethane [#]		2	<5	<0.08	<5	<0.08		
142-28-9	1,3-Dichloropropane [#]		2	<5	<0.08	<5	<0.08		
97-63-2	Ethyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
124-48-1	Dibromochloromethane [#]		2	<5	<0.08	<5	<0.08		
106-93-4	1,2-Dibromoethane [#]		2	<10	<0.16	<10	<0.16		
127-18-4	Tetrachloroethene [#] (PCE)		2.8	<5	<0.06	<5	<0.06		
108-90-7	Chlorobenzene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Element Materials Technology

Client Name: GeoEngineer Ltd
Reference:
Location: Bury
Contact: Ben Crowther

Date of Receipt: 10/02/23

Date Analysed: 17/02/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on nearest exposure time to actual
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Atmospheric Sample (Fence Line)
Volume Sampled by Client: -
EMT Job No: 23/2091
EMT Sample No: 5
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 19/01/2023 10:30 Date:Hours:Mins
Sample Stop Time 10/02/2023 12:00 Date:Hours:Mins
Sample Duration 31,770 Total Minutes

Tube Serial number: 435928

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
ISO 17025 (UKAS) accredited
 (NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate*	RESULT	Concentration in Air	MDL	MDL	Concentration	MDL
			ng/ppm/min		ppb				
630-20-6	1,1,1,2-tetrachloroethane [#]		2	<5	<0.08	<5	<0.08	1.21	<0.47
100-41-4	Ethylbenzene [#]		2	<5	<0.08	<5	<0.08		
179601-23-1	M/Pxylene [#]		1.46	13	0.28	<5	<0.11		
75-25-2	Bromoform [#]		2	<5	<0.08	<5	<0.08		
100-42-5	Styrene [#]		2.4	<5	<0.07	<5	<0.07		
95-47-6	o-Xylene [#]		1.46	<5	<0.11	<5	<0.11		
79-34-5	1,1,2,2-Tetrachloroethane [#]		2	<5	<0.08	<5	<0.08	0.39	<0.33
96-18-4	1,2,3-Trichloropropane [#]		2	<5	<0.08	<5	<0.08		
98-82-8	Isopropylbenzene [#]		2.5	<5	<0.06	<5	<0.06		
110-57-6	trans-1,4-dichloro-2-butene [#]		2	<10	<0.16	<10	<0.16		
108-86-1	Bromobenzene [#]		3.31	<5	<0.05	<5	<0.05		
95-49-8	2-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
103-65-1	Propyl benzene [#]		2.37	<5	<0.07	<5	<0.07		
106-43-4	4-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
108-67-8	1,3,5-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
98-06-6	tert-Butyl benzene [#]		2	<5	<0.08	<5	<0.08		
95-63-6	1,2,4-Trimethylbenzene [#]		2.37	6	0.08	<5	<0.07		
541-73-1	1,3-Dichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
135-98-8	sec-Butylbenzene [#]		2	<5	<0.08	<5	<0.08		
106-46-7	1,4-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
99-87-6	4-Isopropyltoluene [#]		2	<5	<0.08	<5	<0.08		
95-50-1	1,2-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
104-51-8	n-butyl benzene [#]		2	<5	<0.08	<5	<0.08		
67-72-1	Hexachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-12-8	1,2-dibromo-3-chloropropane [#]		2	<10	<0.16	<10	<0.16		
98-95-3	Nitrobenzene [#]		2	<10	<0.16	<10	<0.16		
120-82-1	1,2,4-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
91-20-3	Naphthalene [#]		2.55	<5	<0.06	<5	<0.06		
87-61-6	1,2,3-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
87-68-3	Hexachlorobutadiene [#]		3.5	<5	<0.04	<5	<0.04		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Client Name: GeoEnginseer Ltd

Reference: Bury

Location:

Contact: Ben Crowther

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/2091

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Please include all sections of this report if it is reproduced

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 23/2091

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM197	VOCs by GCMS-TD			N			

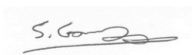
Smith Grant LLP
Bryn Estyn Business Centre
Bryn Estyn Road
Wrexham
LL13 9TY



Attention :	Megan Jones
Date :	16th June 2023
Your reference :	R2174
Our reference :	23/7429
Location :	Tetrosyl
Date samples received :	11th May 2023
Status :	Final Report
Issue :	2

5 samples were received for analysis on 11th May 2023 of which 5 were scheduled for analysis. Please find attached our Test Report which should be read with notes at the end of the report and should include all sections if reproduced. Interpretations and opinions are outside the scope of any accreditation, and all results relate only to samples supplied.

Authorised By:



Simon Gomery BSc
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: Smith Grant
Reference: R2174
Location: Tetrosyl
Contact: Megan Jones

Date of Receipt: 11/05/23

Date Analysed: 30/05/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on exposure time
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Plot 63 (VP1)
Volume Sampled by Client: -
EMT Job No: 23/7429
EMT Sample No: 1
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)
Tube Serial number: 776564

Volume Sampled by Client: Passive Sample

Sample Start Time 20/04/2023 11:48 Date:Hours:Mins
Sample Stop Time 11/05/2023 10:10 Date:Hours:Mins
Sample Duration 30,142 Total Minutes

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
ISO 17025 (UKAS) accredited
(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate*	RESULT	Concentration in Air	MDL	MDL	Concentration	MDL
			ng/ppm/min	ng/tube	ppb	ng/tube	ppb	ug/m ³	ug/m ³
60-29-7	Diethyl ether [#]		2	<5	<0.08	<5	<0.08		
156-60-5	trans-1,2-dichloroethene		2	<90	<1.49	<90	<1.49		
1634-04-4	MTBE		2	<90	<1.49	<90	<1.49		
110-54-3	Hexane [#]		2	22	0.36	<10	<0.17	1.31	<0.59
126-98-7	Methyl acrylonitrile		2	<90	<1.49	<90	<1.49		
156-59-2	cis-1,2-dichloroethene		2	<90	<1.49	<90	<1.49		
594-20-7	2,2-Dichloropropane		2	<90	<1.49	<90	<1.49		
67-66-3	Chloroform		2	<90	<1.49	<90	<1.49		
109-99-9	Tetrahydrofuran		2	<90	<1.49	<90	<1.49		
71-55-6	1,1,1-Trichloroethane		2	<90	<1.49	<90	<1.49		
109-69-3	1-Chlorobutane [#]		2	<5	<0.08	<5	<0.08		
71-43-2	Benzene [#]		1.03	6	0.19	<5	<0.16	0.63	<0.52
563-58-6	1,1-Dichloropropene [#]		2	<5	<0.08	<5	<0.08		
56-23-5	Carbon Tetrachloride		2	<90	<1.49	<90	<1.49		
107-14-2	Chloroacetonitrile [#]		2	<90	<1.49	<90	<1.49		
79-01-6	Trichloroethene [#] (TCE)		2	<5	<0.08	<5	<0.08		
74-95-3	Dibromomethane [#]		2	<5	<0.08	<5	<0.08		
80-62-6	Methyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
75-27-4	Bromodichloromethane [#]		2	<5	<0.08	<5	<0.08		
10061-01-5	cis-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
108-88-3	Toluene [#]		1.22	18	0.49	<5	<0.14	1.87	<0.52
10061-02-6	trans-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
79-00-5	1,1,2-Trichloroethane [#]		2	<5	<0.08	<5	<0.08		
142-28-9	1,3-Dichloropropane [#]		2	<5	<0.08	<5	<0.08		
97-63-2	Ethyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
124-48-1	Dibromochloromethane [#]		2	<5	<0.08	<5	<0.08		
106-93-4	1,2-Dibromoethane [#]		2	<10	<0.17	<10	<0.17		
127-18-4	Tetrachloroethene [#] (PCE)		2.8	<5	<0.06	<5	<0.06		
108-90-7	Chlorobenzene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Client Name:	Smith Grant
Reference:	R2174
Location:	Tetrosyl
Contact:	Megan Jones
Sample ID:	Plot 63 (VP1)
EMT Job No:	23/7429
EMT Sample No:	1
Matrix:	Tenax Tube
Tube Serial number:	776564
Method:	VOCs by Thermal Desorption (GC-MS)

	Rate from Markes Application Note 001 based on exposure time
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Date Analysed: 30/05/23

Volume Sampled by Client: Passive Sample
Sample Start Time 20/04/2023 11:48
Sample Stop Time 11/05/2023 10:10
Sample Duration 30,142

Date:Hours:Mins
Date:Hours:Mins
Total Minutes

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
#	ISO 17025 (UKAS) accredited

[illegible]

ns=Not Specified

Element Materials Technology

Client Name: Smith Grant
Reference: R2174
Location: Tetrosyl
Contact: Megan Jones

Date of Receipt: 11/05/23

Date Analysed: 30/05/23

Uptake Rate Key

	Rate from Markes Application Note 001
	based on exposure time
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Plot 61 (VP2)
Volume Sampled by Client: -
EMT Job No: 23/7429
EMT Sample No: 2
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)
Tube Serial number: 776592

Volume Sampled by Client: Passive Sample

Sample Start Time 20/04/2023 12:10 Date:Hours:Mins

Sample Stop Time 11/05/2023 10:26 Date:Hours:Mins

Sample Duration 30,136 Total Minutes

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
ISO 17025 (UKAS) accredited
(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate* ng/ppm/min	RESULT ng/tube	Concentration in Air ppb	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
60-29-7	Diethyl ether [#]		2	<5	<0.08	<5	<0.08		
156-60-5	trans-1,2-dichloroethene		2	<90	<1.49	<90	<1.49		
1634-04-4	MTBE		2	<90	<1.49	<90	<1.49		
110-54-3	Hexane [#]		2	21	0.35	<10	<0.17	1.25	<0.59
126-98-7	Methyl acrylonitrile		2	<90	<1.49	<90	<1.49		
156-59-2	cis-1,2-dichloroethene		2	<90	<1.49	<90	<1.49		
594-20-7	2,2-Dichloropropane		2	<90	<1.49	<90	<1.49		
67-66-3	Chloroform		2	<90	<1.49	<90	<1.49		
109-99-9	Tetrahydrofuran		2	<90	<1.49	<90	<1.49		
71-55-6	1,1,1-Trichloroethane		2	<90	<1.49	<90	<1.49		
109-69-3	1-Chlorobutane [#]		2	<5	<0.08	<5	<0.08		
71-43-2	Benzene [#]		1.03	5	0.16	<5	<0.16	0.52	<0.52
563-58-6	1,1-Dichloropropene [#]		2	<5	<0.08	<5	<0.08		
56-23-5	Carbon Tetrachloride		2	<90	<1.49	<90	<1.49		
107-14-2	Chloroacetonitrile [#]		2	<90	<1.49	<90	<1.49		
79-01-6	Trichloroethene [#] (TCE)		2	<5	<0.08	<5	<0.08		
74-95-3	Dibromomethane [#]		2	<5	<0.08	<5	<0.08		
80-62-6	Methyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
75-27-4	Bromodichloromethane [#]		2	<5	<0.08	<5	<0.08		
10061-01-5	cis-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
108-88-3	Toluene [#]		1.22	14	0.38	<5	<0.14	1.46	<0.52
10061-02-6	trans-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
79-00-5	1,1,2-Trichloroethane [#]		2	<5	<0.08	<5	<0.08		
142-28-9	1,3-Dichloropropane [#]		2	<5	<0.08	<5	<0.08		
97-63-2	Ethyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
124-48-1	Dibromochloromethane [#]		2	<5	<0.08	<5	<0.08		
106-93-4	1,2-Dibromoethane [#]		2	<10	<0.17	<10	<0.17		
127-18-4	Tetrachloroethene [#] (PCE)		2.8	<5	<0.06	<5	<0.06		
108-90-7	Chlorobenzene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Element Materials Technology

Client Name: Smith Grant
Reference: R2174
Location: Tetrosyl
Contact: Megan Jones

Date of Receipt: 11/05/23

Date Analysed: 30/05/23

Uptake Rate Key

Rate from Markes Application Note 001
based on exposure time
Rate based on 8 hour exposure time from
Markes Application Note 001
No uptake rate available for this compound -
Approximate rate used

Sample ID: Plot 61 (VP2)
Volume Sampled by Client: -
EMT Job No: 23/7429
EMT Sample No: 2
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 20/04/2023 12:10 Date:Hours:Mins

Sample Stop Time 11/05/2023 10:26 Date:Hours:Mins

Sample Duration 30,136 Total Minutes

Tube Serial number: 776592

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria

>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit

ISO 17025 (UKAS) accredited
(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate*	RESULT	Concentration in Air	MDL	MDL	Concentration	MDL
			ng/ppm/min	ng/tube	ppb	ng/tube	ppb	ug/m ³	ug/m ³
630-20-6	1,1,1,2-tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
100-41-4	Ethylbenzene [#]		2	5	0.08	<5	<0.08	0.37	<0.37
179601-23-1	M/Pxylene [#]		1.49	12	0.27	<5	<0.11	1.18	<0.49
75-25-2	Bromoform [#]		2	<5	<0.08	<5	<0.08		
100-42-5	Styrene [#]		2.4	7	0.10	<5	<0.07	0.42	<0.30
95-47-6	o-Xylene [#]		1.49	<5	<0.11	<5	<0.11		
79-34-5	1,1,2,2-Tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-18-4	1,2,3-Trichloropropane [#]		2	<5	<0.08	<5	<0.08		
98-82-8	Isopropylbenzene [#]		2.5	<5	<0.07	<5	<0.07		
110-57-6	trans-1,4-dichloro-2-butene [#]		2	<10	<0.17	<10	<0.17		
108-86-1	Bromobenzene [#]		3.31	<5	<0.05	<5	<0.05		
95-49-8	2-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
103-65-1	Propyl benzene [#]		2.37	<5	<0.07	<5	<0.07		
106-43-4	4-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
108-67-8	1,3,5-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
98-06-6	tert-Butyl benzene [#]		2	<5	<0.08	<5	<0.08		
95-63-6	1,2,4-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
541-73-1	1,3-Dichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
135-98-8	sec-Butylbenzene [#]		2	<5	<0.08	<5	<0.08		
106-46-7	1,4-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
99-87-6	4-Isopropyltoluene [#]		2	<5	<0.08	<5	<0.08		
95-50-1	1,2-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
104-51-8	n-butyl benzene [#]		2	<5	<0.08	<5	<0.08		
67-72-1	Hexachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-12-8	1,2-dibromo-3-chloropropane [#]		2	<10	<0.17	<10	<0.17		
98-95-3	Nitrobenzene [#]		2	<10	<0.17	<10	<0.17		
120-82-1	1,2,4-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
91-20-3	Naphthalene [#]		2.55	<5	<0.07	<5	<0.07		
87-61-6	1,2,3-Trichlorobenzene [#]		2	5	0.08	<5	<0.08	0.63	<0.63
87-68-3	Hexachlorobutadiene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Client Name:	Smith Grant
Reference:	R2174
Location:	Tetrosyl
Contact:	Megan Jones
Sample ID:	Plot 61 (VP2)
EMT Job No:	23/7429
EMT Sample No:	2
Matrix:	Tenax Tube
Tube Serial number:	776592
Method:	VOCs by Thermal Desorption (GC-MS)

Date Analysed: 30/05/23

Volume Sampled by Client: Passive Sample
Sample Start Time 20/04/2023 12:10
Sample Stop Time 11/05/2023 10:26
Sample Duration 30,136

Total Minutes

Rate from Markes Application Note 001 based on exposure time
Rate based on 8 hour exposure time from Markes Application Note 001
No uptake rate available for this compound - Approximate rate used

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
#	ISO 17025 (UKAS) accredited

[illegible]

ns= Not Specified

Element Materials Technology

Client Name: Smith Grant
Reference: R2174
Location: Tetrosyl
Contact: Megan Jones

Date of Receipt: 11/05/23

Date Analysed: 30/05/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on exposure time
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Plot 58 (VP3)
Volume Sampled by Client: -
EMT Job No: 23/7429
EMT Sample No: 3
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)
Tube Serial number: 772091

Volume Sampled by Client: Passive Sample

Sample Start Time 20/04/2023 12:27 Date:Hours:Mins
Sample Stop Time 11/05/2023 10:30 Date:Hours:Mins
Sample Duration 30,123 Total Minutes

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
ISO 17025 (UKAS) accredited
(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate* ng/ppm/min	RESULT ng/tube	Concentration in Air ppb	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
60-29-7	Diethyl ether [#]		2	<5	<0.08	<5	<0.08		
156-60-5	trans-1,2-dichloroethene		2	<90	<1.49	<90	<1.49		
1634-04-4	MTBE		2	<90	<1.49	<90	<1.49		
110-54-3	Hexane [#]		2	17	0.28	<10	<0.17	1.01	<0.59
126-98-7	Methyl acrylonitrile		2	<90	<1.49	<90	<1.49		
156-59-2	cis-1,2-dichloroethene		2	<90	<1.49	<90	<1.49		
594-20-7	2,2-Dichloropropane		2	<90	<1.49	<90	<1.49		
67-66-3	Chloroform		2	<90	<1.49	<90	<1.49		
109-99-9	Tetrahydrofuran		2	<90	<1.49	<90	<1.49		
71-55-6	1,1,1-Trichloroethane		2	<90	<1.49	<90	<1.49		
109-69-3	1-Chlorobutane [#]		2	<5	<0.08	<5	<0.08		
71-43-2	Benzene [#]		1.03	7	0.23	<5	<0.16	0.73	<0.52
563-58-6	1,1-Dichloropropene [#]		2	<5	<0.08	<5	<0.08		
56-23-5	Carbon Tetrachloride		2	<90	<1.49	<90	<1.49		
107-14-2	Chloroacetonitrile [#]		2	<90	<1.49	<90	<1.49		
79-01-6	Trichloroethene [#] (TCE)		2	<5	<0.08	<5	<0.08		
74-95-3	Dibromomethane [#]		2	<5	<0.08	<5	<0.08		
80-62-6	Methyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
75-27-4	Bromodichloromethane [#]		2	<5	<0.08	<5	<0.08		
10061-01-5	cis-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
108-88-3	Toluene [#]		1.22	12	0.33	<5	<0.14	1.25	<0.52
10061-02-6	trans-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
79-00-5	1,1,2-Trichloroethane [#]		2	<5	<0.08	<5	<0.08		
142-28-9	1,3-Dichloropropane [#]		2	<5	<0.08	<5	<0.08		
97-63-2	Ethyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
124-48-1	Dibromochloromethane [#]		2	<5	<0.08	<5	<0.08		
106-93-4	1,2-Dibromoethane [#]		2	<10	<0.17	<10	<0.17		
127-18-4	Tetrachloroethene [#] (PCE)		2.8	<5	<0.06	<5	<0.06		
108-90-7	Chlorobenzene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Element Materials Technology

Client Name: Smith Grant
Reference: R2174
Location: Tetrosyl
Contact: Megan Jones

Date of Receipt: 11/05/23

Date Analysed: 30/05/23

Uptake Rate Key

Rate from Markes Application Note 001 based on exposure time
Rate based on 8 hour exposure time from Markes Application Note 001
No uptake rate available for this compound - Approximate rate used

Sample ID: Plot 58 (VP3)
Volume Sampled by Client: -
EMT Job No: 23/7429
EMT Sample No: 3
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 20/04/2023 12:27 Date:Hours:Mins

Sample Stop Time 11/05/2023 10:30 Date:Hours:Mins

Sample Duration 30,123 Total Minutes

Tube Serial number: 772091

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria

>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit

ISO 17025 (UKAS) accredited
(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate*	RESULT	Concentration in Air	MDL	MDL	Concentration	MDL
			ng/ppm/min	ng/tube	ppb	ng/tube	ppb	ug/m ³	ug/m ³
630-20-6	1,1,1,2-tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
100-41-4	Ethylbenzene [#]		2	18	0.30	<5	<0.08	1.32	<0.37
179601-23-1	M/Pxylene [#]		1.49	11	0.25	<5	<0.11	1.08	<0.49
75-25-2	Bromoform [#]		2	<5	<0.08	<5	<0.08		
100-42-5	Styrene [#]		2.4	32	0.44	<5	<0.07	1.92	<0.30
95-47-6	o-Xylene [#]		1.49	<5	<0.11	<5	<0.11		
79-34-5	1,1,1,2,2-Tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-18-4	1,2,3-Trichloropropane [#]		2	<5	<0.08	<5	<0.08		
98-82-8	Isopropylbenzene [#]		2.5	<5	<0.07	<5	<0.07		
110-57-6	trans-1,4-dichloro-2-butene [#]		2	<10	<0.17	<10	<0.17		
108-86-1	Bromobenzene [#]		3.31	<5	<0.05	<5	<0.05		
95-49-8	2-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
103-65-1	Propyl benzene [#]		2.37	<5	<0.07	<5	<0.07		
106-43-4	4-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
108-67-8	1,3,5-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
98-06-6	tert-Butyl benzene [#]		2	<5	<0.08	<5	<0.08		
95-63-6	1,2,4-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
541-73-1	1,3-Dichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
135-98-8	sec-Butylbenzene [#]		2	<5	<0.08	<5	<0.08		
106-46-7	1,4-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
99-87-6	4-Isopropyltoluene [#]		2	<5	<0.08	<5	<0.08		
95-50-1	1,2-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
104-51-8	n-butyl benzene [#]		2	<5	<0.08	<5	<0.08		
67-72-1	Hexachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-12-8	1,2-dibromo-3-chloropropane [#]		2	<10	<0.17	<10	<0.17		
98-95-3	Nitrobenzene [#]		2	<10	<0.17	<10	<0.17		
120-82-1	1,2,4-Trichlorobenzene [#]		2	8	0.13	<5	<0.08	1.00	<0.63
91-20-3	Naphthalene [#]		2.55	<5	<0.07	<5	<0.07		
87-61-6	1,2,3-Trichlorobenzene [#]		2	8	0.13	<5	<0.08	1.00	<0.63
87-68-3	Hexachlorobutadiene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Client Name:	Smith Grant
Reference:	R2174
Location:	Tetrosyl
Contact:	Megan Jones
Sample ID:	Plot 58 (VP3)
EMT Job No:	23/7429
EMT Sample No:	3
Matrix:	Tenax Tube
Tube Serial number:	772091
Method:	VOCs by Thermal Desorption (GC-MS)

Date Analysed: 30/05/23

Volume Sampled by Client: Passive Sample
Sample Start Time 20/04/2023 12:27
Sample Stop Time 11/05/2023 10:30
Sample Duration 30,123

Date:Hours:Mins
Date:Hours:Mins
Total Minutes

Rate from Markes Application Note 001 based on exposure time
Rate based on 8 hour exposure time from Markes Application Note 001
No uptake rate available for this compound - Approximate rate used

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
#	ISO 17025 (UKAS) accredited

[illegible]

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns= Not Specified

Element Materials Technology

Client Name: Smith Grant
Reference: R2174
Location: Tetrosyl
Contact: Megan Jones

Date of Receipt: 11/05/23

Date Analysed: 30/05/23

Uptake Rate Key

	Rate from Markes Application Note 001 based on exposure time
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Control (VP4)
Volume Sampled by Client: -
EMT Job No: 23/7429
EMT Sample No: 4
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)
Tube Serial number: 776586

Volume Sampled by Client: Passive Sample

Sample Start Time 20/04/2023 12:40 Date:Hours:Mins
Sample Stop Time 11/05/2023 10:36 Date:Hours:Mins
Sample Duration 30,116 Total Minutes

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
ISO 17025 (UKAS) accredited
(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate* ng/ppm/min	RESULT ng/tube	Concentration in Air ppb	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
60-29-7	Diethyl ether [#]		2	<5	<0.08	<5	<0.08		
156-60-5	trans-1,2-dichloroethene		2	<90	<1.49	<90	<1.49		
1634-04-4	MTBE		2	<90	<1.49	<90	<1.49		
110-54-3	Hexane [#]		2	16	0.27	<10	<0.17	0.95	<0.95
126-98-7	Methyl acrylonitrile		2	<90	<1.49	<90	<1.49		
156-59-2	cis-1,2-dichloroethene		2	<90	<1.49	<90	<1.49		
594-20-7	2,2-Dichloropropane		2	<90	<1.49	<90	<1.49		
67-66-3	Chloroform		2	<90	<1.49	<90	<1.49		
109-99-9	Tetrahydrofuran		2	<90	<1.49	<90	<1.49		
71-55-6	1,1,1-Trichloroethane		2	<90	<1.49	<90	<1.49		
109-69-3	1-Chlorobutane [#]		2	<5	<0.08	<5	<0.08		
71-43-2	Benzene [#]		1.03	7	0.23	<5	<0.16	0.73	<0.52
563-58-6	1,1-Dichloropropene [#]		2	<5	<0.08	<5	<0.08		
56-23-5	Carbon Tetrachloride		2	<90	<1.49	<90	<1.49		
107-14-2	Chloroacetonitrile [#]		2	<90	<1.49	<90	<1.49		
79-01-6	Trichloroethene [#] (TCE)		2	<5	<0.08	<5	<0.08		
74-95-3	Dibromomethane [#]		2	<5	<0.08	<5	<0.08		
80-62-6	Methyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
75-27-4	Bromodichloromethane [#]		2	<5	<0.08	<5	<0.08		
10061-01-5	cis-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
108-88-3	Toluene [#]		1.22	12	0.33	<5	<0.14	1.25	<0.52
10061-02-6	trans-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
79-00-5	1,1,2-Trichloroethane [#]		2	<5	<0.08	<5	<0.08		
142-28-9	1,3-Dichloropropane [#]		2	<5	<0.08	<5	<0.08		
97-63-2	Ethyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
124-48-1	Dibromochloromethane [#]		2	<5	<0.08	<5	<0.08		
106-93-4	1,2-Dibromoethane [#]		2	<10	<0.17	<10	<0.17		
127-18-4	Tetrachloroethene [#] (PCE)		2.8	<5	<0.06	<5	<0.06		
108-90-7	Chlorobenzene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Element Materials Technology

Client Name: Smith Grant
Reference: R2174
Location: Tetrosyl
Contact: Megan Jones

Date of Receipt: 11/05/23

Date Analysed: 30/05/23

Uptake Rate Key

Rate from Markes Application Note 001 based on exposure time
Rate based on 8 hour exposure time from Markes Application Note 001
No uptake rate available for this compound - Approximate rate used

Sample ID: Control (VP4)
Volume Sampled by Client: -
EMT Job No: 23/7429
EMT Sample No: 4
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)

Volume Sampled by Client: Passive Sample

Sample Start Time 20/04/2023 12:40 Date:Hours:Mins

Sample Stop Time 11/05/2023 10:36 Date:Hours:Mins

Sample Duration 30,116 Total Minutes

Tube Serial number: 776586

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria

>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit

ISO 17025 (UKAS) accredited
(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate*	RESULT	Concentration in Air	MDL	MDL	Concentration	MDL
			ng/ppm/min		ppb			ug/m ³	
630-20-6	1,1,1,2-tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
100-41-4	Ethylbenzene [#]		2	<5	<0.08	<5	<0.08		
179601-23-1	M/Pxylene [#]		1.49	7	0.16	<5	<0.11	0.69	<0.69
75-25-2	Bromoform [#]		2	<5	<0.08	<5	<0.08		
100-42-5	Styrene [#]		2.4	<5	<0.07	<5	<0.07		
95-47-6	o-Xylene [#]		1.49	<5	<0.11	<5	<0.11		
79-34-5	1,1,2,2-Tetrachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-18-4	1,2,3-Trichloropropane [#]		2	<5	<0.08	<5	<0.08		
98-82-8	Isopropylbenzene [#]		2.5	<5	<0.07	<5	<0.07		
110-57-6	trans-1,4-dichloro-2-butene [#]		2	<10	<0.17	<10	<0.17		
108-86-1	Bromobenzene [#]		3.31	<5	<0.05	<5	<0.05		
95-49-8	2-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
103-65-1	Propyl benzene [#]		2.37	<5	<0.07	<5	<0.07		
106-43-4	4-Chlorotoluene [#]		2	<5	<0.08	<5	<0.08		
108-67-8	1,3,5-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
98-06-6	tert-Butyl benzene [#]		2	<5	<0.08	<5	<0.08		
95-63-6	1,2,4-Trimethylbenzene [#]		2.37	<5	<0.07	<5	<0.07		
541-73-1	1,3-Dichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
135-98-8	sec-Butylbenzene [#]		2	<5	<0.08	<5	<0.08		
106-46-7	1,4-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
99-87-6	4-Isopropyltoluene [#]		2	<5	<0.08	<5	<0.08		
95-50-1	1,2-Dichlorobenzene [#]		3.23	<5	<0.05	<5	<0.05		
104-51-8	n-butyl benzene [#]		2	<5	<0.08	<5	<0.08		
67-72-1	Hexachloroethane [#]		2	<5	<0.08	<5	<0.08		
96-12-8	1,2-dibromo-3-chloropropane [#]		2	<10	<0.17	<10	<0.17		
98-95-3	Nitrobenzene [#]		2	<10	<0.17	<10	<0.17		
120-82-1	1,2,4-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
91-20-3	Naphthalene [#]		2.55	<5	<0.07	<5	<0.07		
87-61-6	1,2,3-Trichlorobenzene [#]		2	<5	<0.08	<5	<0.08		
87-68-3	Hexachlorobutadiene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Client Name:	Smith Grant
Reference:	R2174
Location:	Tetrosyl
Contact:	Megan Jones
Sample ID:	Control (VP4)
EMT Job No:	23/7429
EMT Sample No:	4
Matrix:	Tenax Tube
Tube Serial number:	776586
Method:	VOCs by Thermal Desorption (GC-MS)

	Rate from Markes Application Note 001 based on exposure time
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Date:Hours:Mins
Date:Hours:Mins
Total Minutes

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

MDL	Method Detection Limit
#	ISO 17025 (UKAS) accredited

[illegible]

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns= Not Specified

Element Materials Technology

Client Name: Smith Grant
Reference: R2174
Location: Tetrosyl
Contact: Megan Jones

Date of Receipt: 11/05/23

Date Analysed: 30/05/23

Uptake Rate Key

	Rate from Markes Application Note 001
	based on exposure time
	Rate based on 8 hour exposure time from Markes Application Note 001
	No uptake rate available for this compound - Approximate rate used

Sample ID: Blank (VP5)
Volume Sampled by Client: -
EMT Job No: 23/7429
EMT Sample No: 5
Matrix: Tenax Tube
Method: VOCs by Thermal Desorption (GC-MS)
Tube Serial number: 776505

Volume Sampled by Client: Passive Sample

Sample Start Time 20/04/2023 11:48 Date:Hours:Mins

Sample Stop Time 11/05/2023 10:36 Date:Hours:Mins

Sample Duration 30,168 Total Minutes

Q* - Qualifiers

SV Indicates surrogate recovery outside performance criteria
>> Indicates value exceeds calibration range

Key

MDL Method Detection Limit
ISO 17025 (UKAS) accredited
(NB - accreditation only applies to ng/tube concentrations)

CAS No	Compound	Q*	Passive Uptake Rate* ng/ppm/min	RESULT ng/tube	Concentration in Air ppb	MDL ng/tube	MDL ppb	Concentration ug/m ³	MDL ug/m ³
60-29-7	Diethyl ether [#]		2	<5	<0.08	<5	<0.08		
156-60-5	trans-1,2-dichloroethene		2	<90	<1.49	<90	<1.49		
1634-04-4	MTBE		2	<90	<1.49	<90	<1.49		
110-54-3	Hexane [#]		2	19	0.31	<10	<0.17	1.13	<0.59
126-98-7	Methyl acrylonitrile		2	<90	<1.49	<90	<1.49		
156-59-2	cis-1,2-dichloroethene		2	<90	<1.49	<90	<1.49		
594-20-7	2,2-Dichloropropane		2	<90	<1.49	<90	<1.49		
67-66-3	Chloroform		2	<90	<1.49	<90	<1.49		
109-99-9	Tetrahydrofuran		2	<90	<1.49	<90	<1.49		
71-55-6	1,1,1-Trichloroethane		2	<90	<1.49	<90	<1.49		
109-69-3	1-Chlorobutane [#]		2	<5	<0.08	<5	<0.08		
71-43-2	Benzene [#]		1.03	<5	<0.16	<5	<0.16		
563-58-6	1,1-Dichloropropene [#]		2	<5	<0.08	<5	<0.08		
56-23-5	Carbon Tetrachloride		2	<90	<1.49	<90	<1.49		
107-14-2	Chloroacetonitrile [#]		2	<90	<1.49	<90	<1.49		
79-01-6	Trichloroethene [#] (TCE)		2	<5	<0.08	<5	<0.08		
74-95-3	Dibromomethane [#]		2	<5	<0.08	<5	<0.08		
80-62-6	Methyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
75-27-4	Bromodichloromethane [#]		2	<5	<0.08	<5	<0.08		
10061-01-5	cis-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
108-88-3	Toluene [#]		1.22	9	0.24	<5	<0.14	0.94	<0.52
10061-02-6	trans-1,3-dichloropropene [#]		2	<5	<0.08	<5	<0.08		
79-00-5	1,1,2-Trichloroethane [#]		2	<5	<0.08	<5	<0.08		
142-28-9	1,3-Dichloropropane [#]		2	<5	<0.08	<5	<0.08		
97-63-2	Ethyl methacrylate [#]		2	<5	<0.08	<5	<0.08		
124-48-1	Dibromochloromethane [#]		2	<5	<0.08	<5	<0.08		
106-93-4	1,2-Dibromoethane [#]		2	<10	<0.17	<10	<0.17		
127-18-4	Tetrachloroethene [#] (PCE)		2.8	<5	<0.06	<5	<0.06		
108-90-7	Chlorobenzene [#]		2	<5	<0.08	<5	<0.08		

*Taken from Application Note 001: Uptake rates for tube-type axial diffusive samplers, Markes International, March 2015. Where more than 1 uptake rate is published the uptake rate closest to the sample duration has been chosen.

ns=Not Specified

Client Name: Smith Grant
Reference: R2174
Location: Tetrosyl
Contact: Megan Jones

[illegible]

Please note that only samples that are deviating are mentioned in this report. If no samples are listed it is because none were deviating. Only analyses which are accredited are recorded as deviating if set criteria are not met.

NOTES TO ACCOMPANY ALL SCHEDULES AND REPORTS

EMT Job No.: 23/7429

SOILS

Please note we are only MCERTS accredited (UK soils only) for sand, loam and clay and any other matrix is outside our scope of accreditation.

Where an MCERTS report has been requested, you will be notified within 48 hours of any samples that have been identified as being outside our MCERTS scope. As validation has been performed on clay, sand and loam, only samples that are predominantly these matrices, or combinations of them will be within our MCERTS scope. If samples are not one of a combination of the above matrices they will not be marked as MCERTS accredited.

It is assumed that you have taken representative samples on site and require analysis on a representative subsample. Stones will generally be included unless we are requested to remove them.

All samples will be discarded one month after the date of reporting, unless we are instructed to the contrary.

If you have not already done so, please send us a purchase order if this is required by your company.

Where appropriate please make sure that our detection limits are suitable for your needs, if they are not, please notify us immediately.

All analysis is reported on a dry weight basis unless stated otherwise. Limits of detection for analyses carried out on as received samples are not moisture content corrected. Results are not surrogate corrected. Samples are dried at 35°C ±5°C unless otherwise stated. Moisture content for CEN Leachate tests are dried at 105°C ±5°C.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

Where a CEN 10:1 ZERO Headspace VOC test has been carried out, a 10:1 ratio of water to wet (as received) soil has been used.

% Asbestos in Asbestos Containing Materials (ACMs) is determined by reference to HSG 264 The Survey Guide - Appendix 2 : ACMs in buildings listed in order of ease of fibre release.

Sufficient amount of sample must be received to carry out the testing specified. Where an insufficient amount of sample has been received the testing may not meet the requirements of our accredited methods, as such accreditation may be removed.

Negative Neutralization Potential (NP) values are obtained when the volume of NaOH (0.1N) titrated (pH 8.3) is greater than the volume of HCl (1N) to reduce the pH of the sample to 2.0 - 2.5. Any negative NP values are corrected to 0.

The calculation of Pyrite content assumes that all oxidisable sulphides present in the sample are pyrite. This may not be the case. The calculation may be an overestimate when other sulphides such as Barite (Barium Sulphate) are present.

WATERS

Please note we are not a UK Drinking Water Inspectorate (DWI) Approved Laboratory .

ISO17025 accreditation applies to surface water and groundwater and usually one other matrix which is analysis specific, any other liquids are outside our scope of accreditation.

As surface waters require different sample preparation to groundwaters the laboratory must be informed of the water type when submitting samples.

Where Mineral Oil or Fats, Oils and Grease is quoted, this refers to Total Aliphatics C10-C40.

DEVIATING SAMPLES

All samples should be submitted to the laboratory in suitable containers with sufficient ice packs to sustain an appropriate temperature for the requested analysis. The temperature of sample receipt is recorded on the confirmation schedules in order that the client can make an informed decision as to whether testing should still be undertaken.

SURROGATES

Surrogate compounds are added during the preparation process to monitor recovery of analytes. However low recovery in soils is often due to peat, clay or other organic rich matrices. For waters this can be due to oxidants, surfactants, organic rich sediments or remediation fluids. Acceptable limits for most organic methods are 70 - 130% and for VOCs are 50 - 150%. When surrogate recoveries are outside the performance criteria but the associated AQC passes this is assumed to be due to matrix effect. Results are not surrogate corrected.

DILUTIONS

A dilution suffix indicates a dilution has been performed and the reported result takes this into account. No further calculation is required.

BLANKS

Where analytes have been found in the blank, the sample will be treated in accordance with our laboratory procedure for dealing with contaminated blanks.

NOTE

Data is only reported if the laboratory is confident that the data is a true reflection of the samples analysed. Data is only reported as accredited when all the requirements of our Quality System have been met. In certain circumstances where all the requirements of the Quality System have not been met, for instance if the associated AQC has failed, the reason is fully investigated and documented. The sample data is then evaluated alongside the other quality control checks performed during analysis to determine its suitability. Following this evaluation, provided the sample results have not been effected, the data is reported but accreditation is removed. It is a UKAS requirement for data not reported as accredited to be considered indicative only, but this does not mean the data is not valid.

Where possible, and if requested, samples will be re-extracted and a revised report issued with accredited results. Please do not hesitate to contact the laboratory if further details are required of the circumstances which have led to the removal of accreditation.

Please include all sections of this report if it is reproduced

REPORTS FROM THE SOUTH AFRICA LABORATORY

Any method number not prefixed with SA has been undertaken in our UK laboratory unless reported as subcontracted.

Measurement Uncertainty

Measurement uncertainty defines the range of values that could reasonably be attributed to the measured quantity. This range of values has not been included within the reported results. Uncertainty expressed as a percentage can be provided upon request.

ABBREVIATIONS and ACRONYMS USED

#	ISO17025 (UKAS Ref No. 4225) accredited - UK.
SA	ISO17025 (SANAS Ref No.T0729) accredited - South Africa
B	Indicates analyte found in associated method blank.
DR	Dilution required.
M	MCERTS accredited.
NA	Not applicable
NAD	No Asbestos Detected.
ND	None Detected (usually refers to VOC and/SVOC TICs).
NDP	No Determination Possible
SS	Calibrated against a single substance
SV	Surrogate recovery outside performance criteria. This may be due to a matrix effect.
W	Results expressed on as received basis.
+	AQC failure, accreditation has been removed from this result, if appropriate, see 'Note' on previous page.
>>	Results above calibration range, the result should be considered the minimum value. The actual result could be significantly higher, this result is not accredited.
*	Analysis subcontracted to an Element Materials Technology approved laboratory.
AD	Samples are dried at 35°C ±5°C
CO	Suspected carry over
LOD/LOR	Limit of Detection (Limit of Reporting) in line with ISO 17025 and MCERTS
ME	Matrix Effect
NFD	No Fibres Detected
BS	AQC Sample
LB	Blank Sample
N	Client Sample
TB	Trip Blank Sample
OC	Outside Calibration Range

EMT Job No: 23/7429

Test Method No.	Description	Prep Method No. (if appropriate)	Description	ISO 17025 (UKAS/S ANAS)	MCERTS (UK soils only)	Analysis done on As Received (AR) or Dried (AD)	Reported on dry weight basis
TM197	VOCs by GCMS-TD			N			