

OHES Environmental
Wassage Way
Hampton Lovett Estate
Droitwich
Worcestershire
WR9 0NX



Attention : Ian Holmes
Date : 24th June, 2022
Your reference :
Our reference : Test Report 22/10120 Batch 1
Location : Unity
Date samples received : 21st June, 2022
Status : Final Report
Issue : 1

Four samples were received for analysis on 21st June, 2022 of which four 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.

All analysis is carried out on as received samples and reported on a dry weight basis unless stated otherwise. Results are not surrogate corrected.

Authorised By:



Bruce Leslie
Project Manager

Please include all sections of this report if it is reproduced

Element Materials Technology

Client Name: OHES Environmental
Reference:
Location: Unity
Contact: Ian Holmes
EMT Job No: 22/10120

Report : Liquid

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
H=H₂SO₄, Z=ZnAc, N=NaOH, HN=HNO₃

EMT Sample No.	1-2	3-4	5-7	8-9							Please see attached notes for all abbreviations and acronyms		
Sample ID	L1	L2	S1	S2									
Depth													
COC No / misc													
Containers	V G	V G	V G	V G									
Sample Date	17/06/2022	17/06/2022	17/06/2022	17/06/2022									
Sample Type	Surface Water	Surface Water	Surface Water	Surface Water									
Batch Number	1	1	1	1									
Date of Receipt	21/06/2022	21/06/2022	21/06/2022	21/06/2022							LOD/LOR	Units	Method No.
Dissolved Arsenic #	<2.5	-	-	-							<2.5	ug/l	TM30/PM14
Dissolved Barium #	165	-	-	-							<3	ug/l	TM30/PM14
Dissolved Beryllium	<0.5	-	-	-							<0.5	ug/l	TM30/PM14
Dissolved Boron	19	-	-	-							<12	ug/l	TM30/PM14
Dissolved Cadmium #	<0.5	-	-	-							<0.5	ug/l	TM30/PM14
Total Dissolved Chromium #	4.6	-	-	-							<1.5	ug/l	TM30/PM14
Dissolved Copper #	<7	-	-	-							<7	ug/l	TM30/PM14
Dissolved Lead #	<5	-	-	-							<5	ug/l	TM30/PM14
Dissolved Mercury #	<1	-	-	-							<1	ug/l	TM30/PM14
Dissolved Nickel #	3	-	-	-							<2	ug/l	TM30/PM14
Dissolved Selenium #	<3	-	-	-							<3	ug/l	TM30/PM14
Dissolved Vanadium #	3.2	-	-	-							<1.5	ug/l	TM30/PM14
Dissolved Zinc #	102	-	-	-							<3	ug/l	TM30/PM14
PAH MS													
Naphthalene #	-	<0.1	<2.0 _{AB}	<0.1							<0.1	ug/l	TM4/PM30
Acenaphthylene #	-	<0.005	2.082 _{AB}	<0.005							<0.005	ug/l	TM4/PM30
Acenaphthene #	-	<0.005	2.268 _{AB}	<0.005							<0.005	ug/l	TM4/PM30
Fluorene #	-	0.013	14.524 _{AB}	<0.005							<0.005	ug/l	TM4/PM30
Phenanthrene #	-	0.018	61.236 _{AB}	0.018							<0.005	ug/l	TM4/PM30
Anthracene #	-	<0.005	5.878 _{AB}	<0.005							<0.005	ug/l	TM4/PM30
Fluoranthene #	-	0.009	<0.100 _{AB}	<0.005							<0.005	ug/l	TM4/PM30
Pyrene #	-	0.008	6.201 _{AB}	<0.005							<0.005	ug/l	TM4/PM30
Benzo(a)anthracene #	-	<0.005	1.447 _{AB}	<0.005							<0.005	ug/l	TM4/PM30
Chrysene #	-	<0.005	1.247 _{AB}	<0.005							<0.005	ug/l	TM4/PM30
Benzo(bk)fluoranthene #	-	<0.008	<0.160 _{AB}	<0.008							<0.008	ug/l	TM4/PM30
Benzo(a)pyrene #	-	<0.005	<0.100 _{AB}	<0.005							<0.005	ug/l	TM4/PM30
Indeno(123cd)pyrene #	-	<0.005 ⁺	<0.100 ⁺ _{AB}	<0.005 ⁺							<0.005	ug/l	TM4/PM30
Dibenzo(ah)anthracene #	-	<0.005	<0.100 _{AB}	<0.005							<0.005	ug/l	TM4/PM30
Benzo(ghi)perylene #	-	<0.005	<0.100 _{AB}	<0.005							<0.005	ug/l	TM4/PM30
PAH 16 Total #	-	<0.173	94.883 _{AB}	<0.173							<0.173	ug/l	TM4/PM30
Benzo(b)fluoranthene	-	<0.008	<0.160 _{AB}	<0.008							<0.008	ug/l	TM4/PM30
Benzo(k)fluoranthene	-	<0.008	<0.160 _{AB}	<0.008							<0.008	ug/l	TM4/PM30
PAH Surrogate % Recovery	-	85	121 _{AB}	83							<0	%	TM4/PM30
EPH >C8-C10	-	<10	<100 _{AA}	<10							<10	ug/l	TM5/PM30
EPH >C10-C12 #	-	<10	<100 _{AA}	<10							<10	ug/l	TM5/PM30
EPH >C12-C16 #	-	<10	101370 _{AA}	<10							<10	ug/l	TM5/PM30
EPH >C16-C21 #	-	<10	1100320 _{AA}	<10							<10	ug/l	TM5/PM30
EPH >C21-C35 #	-	<10	551550 _{AA}	<10							<10	ug/l	TM5/PM30
EPH >C35-C40 #	-	<10	1350 _{AA}	<10							<10	ug/l	TM5/PM30
EPH >C8-C40	-	<10	1754590 _{AA}	<10							<10	ug/l	TM5/PM30
PCBs (Total vs Aroclor 1254)	-	<0.2	<10.0 _{AC}	<0.2							<0.2	ug/l	TM17/PM30

Element Materials Technology

Report : Liquid

Location: Unity
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EMT Job No: 22/10120

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Please see attached notes for all abbreviations and acronyms

Element Materials Technology

Report : Product

Location: Unity
Contact: Ian Holmes
EMT Job No: 22/10120

Liquids/products: V=40ml vial, G=glass bottle, P=plastic bottle
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[illegible]

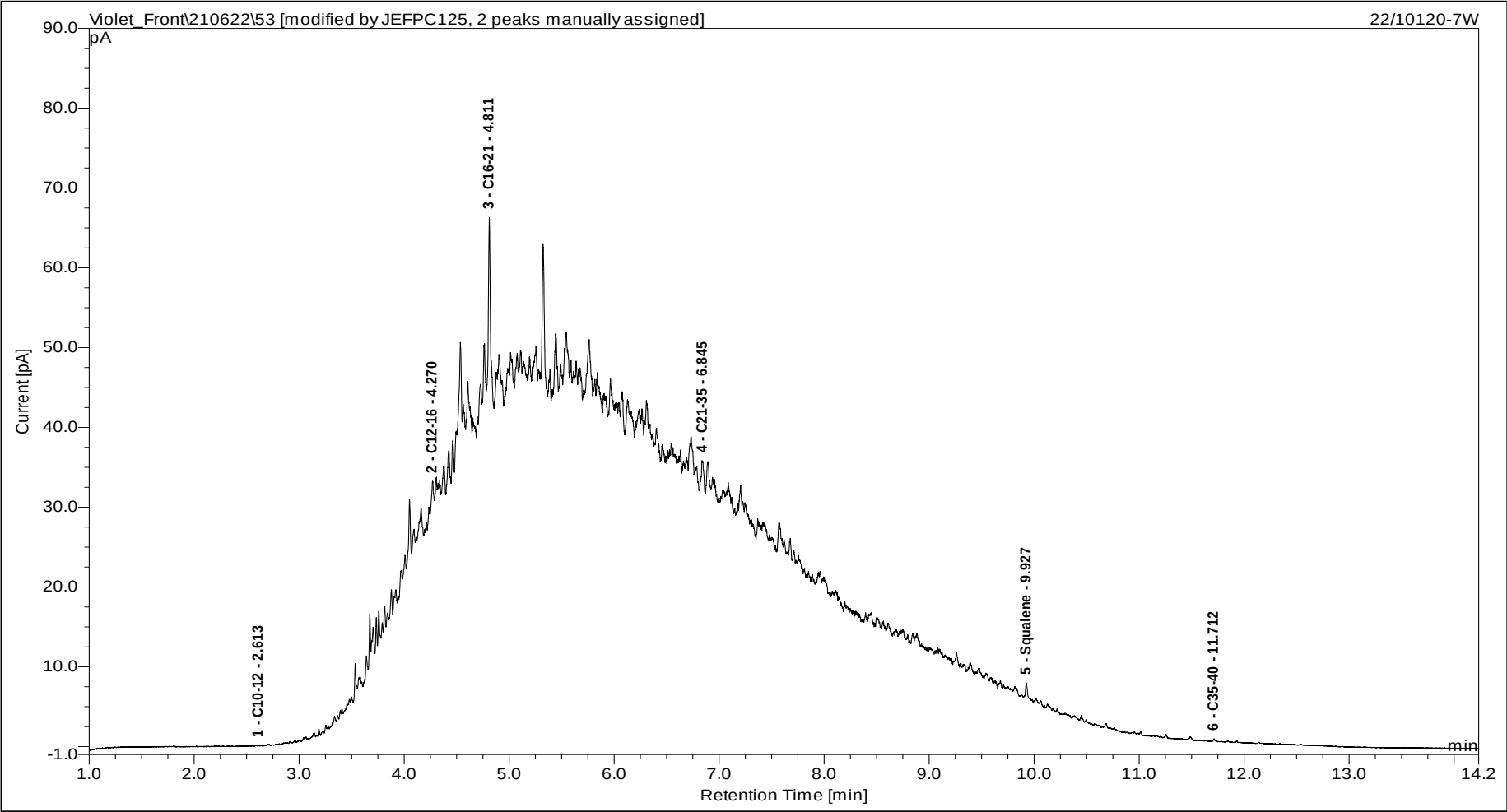
Matrix : Liquid

Contact: Ian Holmes

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Client Name: OHES Environmental
 Reference:
 Location: Unity
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EMT Job No.: 22/10120
 EMT Sample No.: 7
 Sample Identity: S1
 Depth:
 Matrix: Liquid



Client Name: OHES Environmental
Reference:
Location: Unity
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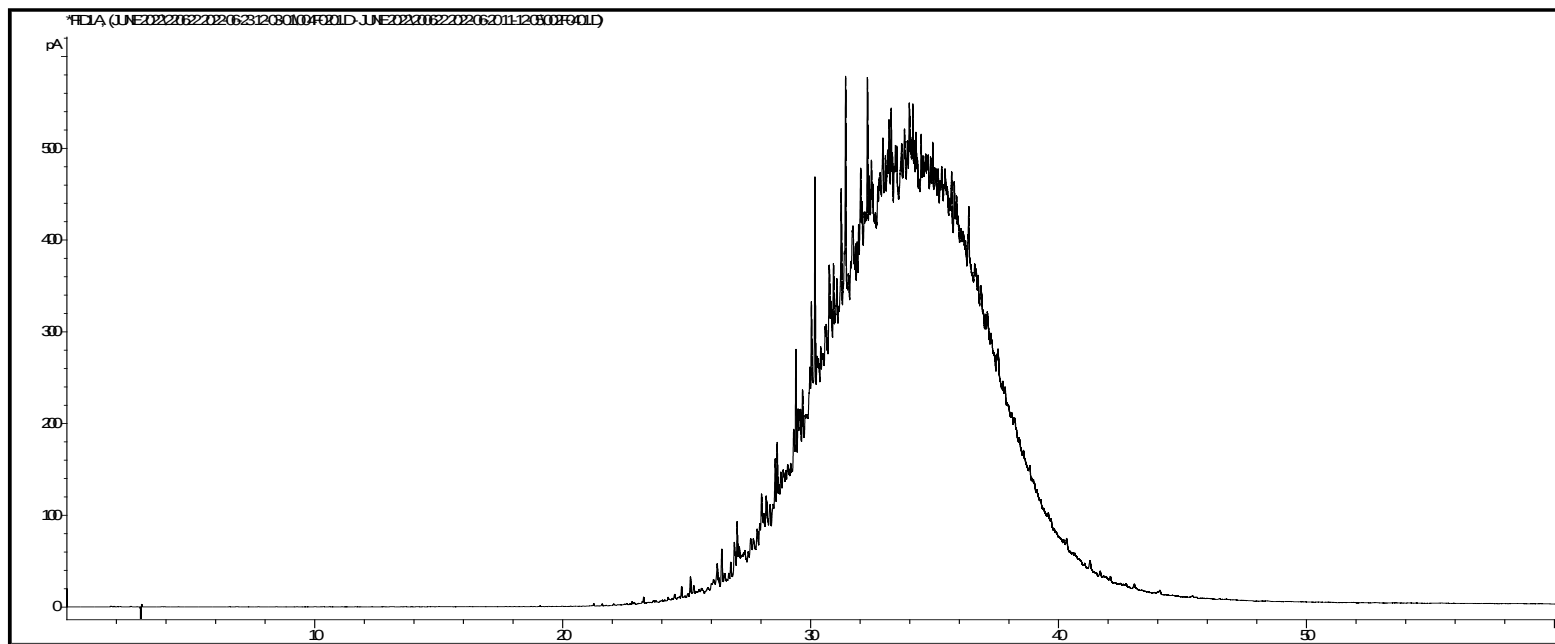
EMT Job No.: 22/10120
EMT Sample No.: 1
Sample Identity: L1
Depth:

Description: Pale Yellow oil on Water
Carbon Range: 11-35
Boiling Point Range (°C): 196-491
Pristane/Phytane Ratio: N/A
nC₁₇/Pristane Ratio: N/A
Age of Diesel (+/- 2 years)*: N/A

% Diesel: -
% Petrol: -
Estimated % Weathering of Petrol: -
Toluene/nC₈ ratio of Petrol: -
Age of Petrol (years) (schmidt et al 2002): -

Interpretation: Transformer Oil

Chromatogram:



*The age of release estimated in this report is based on the nC₁₇/pristane ratio only as prescribed by Christensen and Larsen (1993) and Kaplan, Galperin, Alimi et al., (1996). Age estimation should be treated with caution as it can be influenced by site specific factors of which the laboratory is not aware.

Client Name: OHES Environmental

Reference:

Location: Unity

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[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.: 22/10120

SOILS and ASH

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. Asbestos samples are retained for 6 months.

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. Ash samples are dried at 37°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.

STACK EMISSIONS

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 for Dioxins and Furans and Dioxin like PCBs has been performed on XAD-2 Resin, only samples which use this resin will be within our MCERTS scope.

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

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.

Laboratory records are kept for a period of no less than 6 years.

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.

Customer Provided Information

Sample ID and depth is information provided by the customer.

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.
*	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
AA	x10 Dilution
AB	x20 Dilution
AC	x50 Dilution

HWOL ACRONYMS AND OPERATORS USED

HS	Headspace Analysis.
EH	Extractable Hydrocarbons - i.e. everything extracted by the solvent.
CU	Clean-up - e.g. by florisil, silica gel.
1D	GC - Single coil gas chromatography.
Total	Aliphatics & Aromatics.
AL	Aliphatics only.
AR	Aromatics only.
2D	GC-GC - Double coil gas chromatography.
#1	EH_Total but with humics mathematically subtracted
#2	EU_Total but with fatty acids mathematically subtracted
_	Operator - underscore to separate acronyms (exception for +).
+	Operator to indicate cumulative e.g. EH+HS_Total or EH_CU+HS_Total
MS	Mass Spectrometry.

EMT Job No: 22/10120

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
TM1	Modified USEPA 8015B v2:1996 method for the determination of carbon banding in oil and product samples by GC-FID.	PM0	No preparation is required.			AR	
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM4	Modified USEPA 8270D v5:2014 method for the solvent extraction and determination of PAHs by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM5	Modified 8015B v2:1996 method for the determination of solvent Extractable Petroleum Hydrocarbons (EPH) within the range C8-C40 by GCFID. For waters the solvent extracts dissolved phase plus a sheen if present.	PM8	End over end extraction of solid samples for organic analysis. The solvent mix varies depending on analysis required.				
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.				
TM17	Modified US EPA method 8270D v5:2014. Determination of specific Polychlorinated Biphenyl congeners by GC-MS.	PM30	Water samples are extracted with solvent using a magnetic stirrer to create a vortex.	Yes			
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified				
TM30	Determination of Trace Metals by ICP-OES (Inductively Coupled Plasma – Optical Emission Spectrometry): WATERS by Modified USEPA Method 200.7, Rev. 4.4, 1994; Modified EPA Method 6010B, Rev.2, Dec 1996; Modified BS EN ISO 11885:2009: SOILS by Modified USEP 6010B, Rev.2, Dec.1996; Modified EPA Method 3050B, Rev.2, Dec.1996	PM14	Preparation of waters and leachates for metals by ICP OES/ICP MS. Samples are filtered for Dissolved metals, and remain unfiltered for Total metals then acidified	Yes			