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## **Analytical Report Number : 20-18896**

<b>Project / Site name:</b>	19 Mallord st. Chelsea	<b>Samples received on:</b>	10/07/2020
<b>Your job number:</b>	GM120138	<b>Sample instructed/ Analysis started on:</b>	10/07/2020
<b>Your order number:</b>		<b>Analysis completed by:</b>	23/07/2020
<b>Report Issue Number:</b>	1	<b>Report issued on:</b>	23/07/2020
<b>Samples Analysed:</b>	2 wac multi samples		

**Signed:** *A. Czerwińska*

Agnieszka Czerwińska

Technical Reviewer (Reporting Team)  
**For & on behalf of i2 Analytical Ltd.**

Standard Geotechnical, Asbestos and Chemical Testing Laboratory located at: ul. Pionierów 39, 41 -711 Ruda Śląska, Poland.

Accredited tests are defined within the report, opinions and interpretations expressed herein are outside the scope of accreditation.

Standard sample disposal times, unless otherwise agreed with the laboratory, are :

soils	- 4 weeks from reporting
leachates	- 2 weeks from reporting
waters	- 2 weeks from reporting
asbestos	- 6 months from reporting

Excel copies of reports are only valid when accompanied by this PDF certificate.

Any assessments of compliance with specifications are based on actual analytical results with no contribution from uncertainty of measurement. Application of uncertainty of measurement would provide a range within which the true result lies. An estimate of measurement uncertainty can be provided on request.

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The results included within the report relate only to the sample(s) submitted for testing.

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## i2 Analytical

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### Waste Acceptance Criteria Analytical Results

<b>Report No:</b>	20-18896					
				<b>Client: GEO-MATTERS</b>		
<b>Location</b>	19 Mallord st. Chelsea					
<b>Lab Reference (Sample Number)</b>	1559180			<b>Landfill Waste Acceptance Criteria</b>		
<b>Sampling Date</b>				<b>Limits</b>		
<b>Sample ID</b>	WS04			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
<b>Depth (m)</b>	0.90					
<b>Solid Waste Analysis</b>						
TOC (%)**	0.4			3%	5%	6%
Loss on Ignition (%) **	1.8			--	--	10%
BTEX (µg/kg) **	< 10			6000	--	--
Sum of PCBs (mg/kg) **	< 0.30			1	--	--
Mineral Oil (mg/kg) #	< 10			500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85			100	--	--
pH (units)**	7.8			--	>6	--
Acid Neutralisation Capacity (mol / kg)	3.2			--	To be evaluated	To be evaluated
<b>Eluate Analysis</b>	2:1	8:1		Cumulative 10:1	Limit values for compliance leaching test	
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l		mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)	
Arsenic *	< 0.010	< 0.010		0.068	0.5	2
Barium *	0.018	0.0082		0.091	20	100
Cadmium *	< 0.0005	< 0.0005		< 0.0020	0.04	1
Chromium *	< 0.0010	< 0.0010		0.0061	0.5	10
Copper *	0.0038	0.0098		0.093	2	50
Mercury *	< 0.0015	< 0.0015		< 0.010	0.01	0.2
Molybdenum *	0.0093	< 0.0030		0.026	0.5	10
Nickel *	< 0.0010	< 0.0010		0.0053	0.4	10
Lead *	< 0.0050	< 0.0050		< 0.020	0.5	10
Antimony *	< 0.0050	< 0.0050		0.040	0.06	0.7
Selenium *	< 0.010	< 0.010		0.055	0.1	0.5
Zinc *	0.0025	0.0030		0.029	4	50
Chloride *	< 4.0	< 4.0		16	800	15000
Fluoride	< 0.050	< 0.050		0.30	10	150
Sulphate *	73	9.4		150	1000	20000
TDS*	290	64		850	4000	60000
Phenol Index (Monohydric Phenols) *	< 0.13	< 0.13		< 0.50	1	-
DOC	8.3	11		110	500	800
<b>Leach Test Information</b>						
Stone Content (%)	< 0.1					
Sample Mass (kg)	0.50					
Dry Matter (%)	94					
Moisture (%)	5.6					
<b>Stage 1</b>						
Volume Eluate L2 (litres)	0.34					
Filtered Eluate VE1 (litres)	0.16					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.  
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.

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### Waste Acceptance Criteria Analytical Results

<b>Report No:</b>	<b>20-18896</b>					
				<b>Client: GEO-MATTERS</b>		
<b>Location</b>	<b>19 Mallord st. Chelsea</b>					
<b>Lab Reference (Sample Number)</b>	1559181			<b>Landfill Waste Acceptance Criteria</b>		
<b>Sampling Date</b>				<b>Limits</b>		
<b>Sample ID</b>	WS06			Inert Waste Landfill	Stable Non-reactive HAZARDOUS waste in non-hazardous Landfill	Hazardous Waste Landfill
<b>Depth (m)</b>	1.20					
<b>Solid Waste Analysis</b>						
TOC (%)**	< 0.1			3%	5%	6%
Loss on Ignition (%) **	1.0			--	--	10%
BTEX (µg/kg) **	< 10			6000	--	--
Sum of PCBs (mg/kg) **	< 0.30			1	--	--
Mineral Oil (mg/kg) #	< 10			500	--	--
Total PAH (WAC-17) (mg/kg)	< 0.85			100	--	--
pH (units)**	6.4			--	>6	--
Acid Neutralisation Capacity (mol / kg)	-0.61			--	To be evaluated	To be evaluated
<b>Eluate Analysis</b>	2:1	8:1	Cumulative 10:1	Limit values for compliance leaching test		
(BS EN 12457 - 3 preparation utilising end over end leaching procedure)	mg/l	mg/l	mg/kg	using BS EN 12457-3 at L/S 10 l/kg (mg/kg)		
Arsenic *	0.012	< 0.010	0.068	0.5	2	25
Barium *	0.018	0.010	0.11	20	100	300
Cadmium *	< 0.0005	< 0.0005	< 0.0020	0.04	1	5
Chromium *	0.0022	0.0022	0.022	0.5	10	70
Copper *	0.0035	0.0055	0.053	2	50	100
Mercury *	< 0.0015	< 0.0015	< 0.010	0.01	0.2	2
Molybdenum *	0.011	< 0.0030	0.030	0.5	10	30
Nickel *	0.0022	0.0013	0.014	0.4	10	40
Lead *	< 0.0050	< 0.0050	0.030	0.5	10	50
Antimony *	< 0.0050	< 0.0050	< 0.020	0.06	0.7	5
Selenium *	< 0.010	< 0.010	< 0.040	0.1	0.5	7
Zinc *	0.0032	0.0062	0.058	4	50	200
Chloride *	4.5	< 4.0	22	800	15000	25000
Fluoride	0.55	0.24	2.7	10	150	500
Sulphate *	6.9	0.97	17	1000	20000	50000
TDS*	56	66	650	4000	60000	100000
Phenol Index (Monhydric Phenols) *	< 0.13	< 0.13	< 0.50	1	-	-
DOC	16	11	110	500	800	1000
<b>Leach Test Information</b>						
Stone Content (%)	< 0.1					
Sample Mass (kg)	0.50					
Dry Matter (%)	98					
Moisture (%)	1.9					
<b>Stage 1</b>						
Volume Eluate L2 (litres)	0.35					
Filtered Eluate VE1 (litres)	0.20					
Results are expressed on a dry weight basis, after correction for moisture content where applicable.				* = UKAS accredited (liquid eluate analysis only)		
Stated limits are for guidance only and i2 cannot be held responsible for any discrepancies with current legislation				** = MCERTS accredited		

Landfill WAC analysis (specifically leaching test results) must not be used for hazardous waste classification purposes as defined by the Waste (England and Wales) Regulations 2011 (as amended) and EA Guidance WM3.  
This analysis is only applicable for landfill acceptance criteria (The Environmental Permitting (England and Wales) Regulations) and does not give any indication as to whether a waste may be hazardous or non-hazardous.



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**Project / Site name: 19 Mallord st. Chelsea**

\* These descriptions are only intended to act as a cross check if sample identities are questioned. The major constituent of the sample is intended to act with respect to MCERTS validation. The laboratory is accredited for sand, clay and loam (MCERTS) soil types. Data for unaccredited types of solid should be interpreted with care.

Stone content of a sample is calculated as the % weight of the stones not passing a 10 mm sieve. Results are not corrected for stone content.

Lab Sample Number	Sample Reference	Sample Number	Depth (m)	Sample Description *
1559180	WS04	None Supplied	0.90	Brown loam with gravel.
1559181	WS06	None Supplied	1.20	Brown loam and clay with gravel.



**Analytical Report Number : 20-18896**

**Project / Site name: 19 Mallord st. Chelsea**

**Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)**

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
Acid neutralisation capacity of soil	Determination of acid neutralisation capacity by addition of acid or alkali followed by electronic probe.	In-house method based on Guidance an Sampling and Testing of Wastes to Meet Landfill Waste Acceptance	L046-PL	W	NONE
BTEX (Sum of BTEX compounds) in soil	Determination of BTEX in soil by headspace GC-MS. Individual components MCERTS accredited	In-house method based on USEPA8260	L073B-PL	W	MCERTS
Chloride in WAC leachate (BS EN 12457-3 Prep)	Determination of Chloride colorimetrically by discrete analyser.	In house based on MEWAM Method ISBN 0117516260.	L082-PL	W	ISO 17025
DOC in WAC leachate (BS EN 12457-3 Prep)	Determination of dissolved organic carbon in leachate by TOC/DOC NDIR analyser.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L037-PL	W	NONE
Fluoride in WAC leachate (BS EN 12457-3 Prep)	Determination of fluoride in leachate by 1:1ratio with a buffer solution followed by Ion Selective Electrode.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L033-PL	W	ISO 17025
Loss on ignition of soil @ 450oC	Determination of loss on ignition in soil by gravimetrically with the sample being ignited in a muffle furnace.	In house method.	L047-PL	D	MCERTS
Metals in WAC leachate (BS EN 12457-3 Prep)	Determination of metals in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
Mineral Oil in Soil C10 - C40	Determination of dichloromethane/hexane extractable hydrocarbons in soil by GC-MS.	In-house method based on USEPA 8270	L076-PL	D	NONE
Moisture Content	Moisture content, determined gravimetrically. (30 oC)	In house method.	L019-UK/PL	W	NONE
PCB's by GC-MS in soil	Determination of PCB by extraction with acetone and hexane followed by GC-MS.	In-house method based on USEPA 8082	L027-PL	D	MCERTS
pH in soil	Determination of pH in soil by addition of water followed by electrometric measurement.	In house method.	L005-PL	W	MCERTS
Phenol Index in WAC leachate (BS EN 12457-3 Prep)	Determination of monohydric phenols in leachate by continuous flow analyser.	In-house method based on Examination of Water and Wastewater 20th Edition: Clesceri, Greenberg & Eaton (skalar)	L080-PL	W	ISO 17025
Speciated WAC-17 PAHs in soil	Determination of PAH compounds in soil by extraction in dichloromethane and hexane followed by GC-MS with the use of surrogate and internal standards.	In-house method based on USEPA 8270. MCERTS accredited except Coronene.	L064-PL	D	MCERTS
Stones content of soil	Standard preparation for all samples unless otherwise detailed. Gravimetric determination of stone > 10 mm as % dry weight.	In-house method based on British Standard Methods and MCERTS requirements.	L019-UK/PL	D	NONE
Sulphate in WAC leachate (BS EN 12457-3 Prep)	Determination of sulphate in leachate by acidification followed by ICP-OES.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L039-PL	W	ISO 17025
TDS in WAC leachate (BS EN 12457-3 Prep)	Determination of total dissolved solids in leachate by electrometric measurement.	In-house method based on Standard Methods for the Examination of Water and Waste Water, 21st Ed.	L031-PL	W	NONE
Total organic carbon in soil	Determination of organic matter in soil by oxidising with potassium dichromate followed by titration with iron (II) sulphate.	In house method.	L023-PL	D	MCERTS

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**Water matrix abbreviations: Surface Water (SW) Potable Water (PW) Ground Water (GW) Process Water (PrW)**

Analytical Test Name	Analytical Method Description	Analytical Method Reference	Method number	Wet / Dry Analysis	Accreditation Status
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For method numbers ending in 'UK' analysis have been carried out in our laboratory in the United Kingdom.

For method numbers ending in 'PL' analysis have been carried out in our laboratory in Poland.

Soil analytical results are expressed on a dry weight basis. Where analysis is carried out on as-received the results obtained are multiplied by a moisture correction factor that is determined gravimetrically using the moisture content which is carried out at a maximum of 30oC.

Sample Deviation Report



Sample ID	Other ID	Sample Type	Job	Sample Number	Sample Deviation Code	test_name	test_ref	Test Deviation code
WS04		M	20-18896	1559180	ab	BTEX (Sum of BTEX compounds) in soil	L073B-PL	b
WS04		M	20-18896	1559180	ab	BTEX in soil (Monoaromatics)	L073B-PL	b
WS06		M	20-18896	1559181	ab	BTEX (Sum of BTEX compounds) in soil	L073B-PL	b
WS06		M	20-18896	1559181	ab	BTEX in soil (Monoaromatics)	L073B-PL	b