



SOCOTEC

Environmental Chemistry
SOCOTEC UK
Ashby Rd, Bretby,
Burton-on-Trent, UK
DE15 0YZ

Certificate of Analysis

Project No: 20121058

Client: Shetland Islands Council

Quote Number: BEC201213852

Project Reference: Shetland Islands Council

Site Name: December Residue Analysis 2020

Contact

Address: Lerwick Energy Recovery Plant
Greenhead Base
Gremista Industrial Estate
Lerwick, Shetland

Post Code: ZE1 0PX

E-Mail: [REDACTED]@shetland.gov.uk

Phone No: 01595 745166

Number of Samples Received: 4

Date Received: 12/12/2020

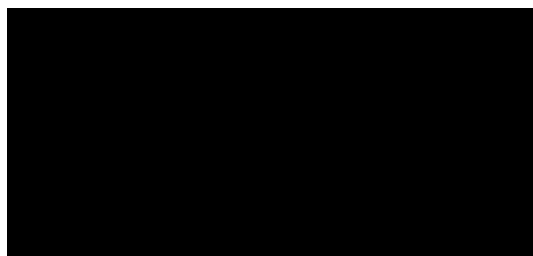
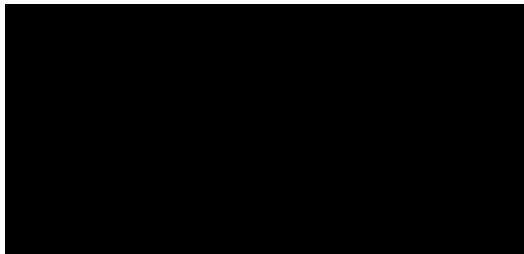
Analysis Date: 14/01/2021

Date Issued: 14/01/2021

Job Status: Complete

Report Type: Final Version 01

This report supersedes any versions previously issued by the laboratory





Client: Shetland Islands Council

Project Name: December Residue Analysis 2020

Project No: 20121058

Date Issued: 14/01/2021

Samples Analysed

<u>Sample Reference</u>	<u>Text ID</u>	<u>Sample Date</u>	<u>Sample Type</u>
Bottom Ash	20121058-001	08/12/2020 11:50:00	SOLID
ESP	20121058-002	09/12/2020 11:40:00	SOLID
Bag Filter	20121058-003	10/12/2020 11:45:00	SOLID
Filter Press	20121058-004	11/12/2020 11:20:00	SOLID

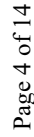
Analysis Results

Analysis		Method Code	MDL	Units	Accred	20121058			
Total Organic Carbon		WSLM59	0.02	% m/m	U	001		002	
LOI @ 450°C		LOI(%MM)	0.2	% m/m	N	Bottom Ash		ESP	
Antimony as Sb		ICPMSW (Dissolved)	0.001	mg/l	U	LPL	SOLID	LPL	003
Arsenic as As		ICPMSW (Dissolved)	0.001	mg/l	U	08/12/2020	08/12/2020	09/12/2020	Bag Filter
Total Chromium as Cr		ICPMSW (Dissolved)	0.001	mg/l	U				
Copper as Cu		ICPMSW (Dissolved)	0.001	mg/l	U				
Lead as Pb		ICPMSW (Dissolved)	0.001	mg/l	U				
Molybdenum as Mo		ICPMSW (Dissolved)	0.001	mg/l	U				
Nickel as Ni		ICPMSW (Dissolved)	0.001	mg/l	U				
Selenium as Se		ICPMSW (Dissolved)	0.001	mg/l	U				
Zinc as Zn		ICPMSW (Dissolved)	0.002	mg/l	U				
Total Moisture at 35°C		CLANDPREP	0.1	%	N				
Description of Solid Material		CLANDPREP		-	N				
Equivalent Weight of Dry Material (kg)		Leachate Preparation CEN 10:1		kg	N				
Fraction above 4mm (%)		Leachate Preparation CEN 10:1		%	N				
Fraction of non-crushable material (%)		Leachate Preparation CEN 10:1		%	N				
Volume of Water for 10:1 Leach (ltr)		Leachate Preparation CEN 10:1		l	N				
Weight of Sample Leached (kg)		Leachate Preparation CEN 10:1		kg	N				
Total Moisture at 105°C		SUB022		%	N				
Free Lime Content		SUB051	0.1	%	N				



Project No: 20121058
Date Issued: 14/01/2021

Project ID				20121058	
Sample ID		003		004	
Customer ID		Bag Filter		Filler Press	
Sample Type		SOLID		LPL	
Sampling Date		10/12/2020		11/12/2020	
Method Code		MDL		Units	
Analysis		Method Code		Accred	
Total Organic Carbon	WSLM59	0.02	% m/m	U	13.9*
LOI @ 450°C	LOI(%MM)	0.2	% m/m	N	9.4
Antimony as Sb	ICPMSW (Dissolved)	0.001	mg/l	U	0.124
Arsenic as As	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001
Total Chromium as Cr	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001
Copper as Cu	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001
Lead as Pb	ICPMSW (Dissolved)	0.001	mg/l	U	0.003
Molybdenum as Mo	ICPMSW (Dissolved)	0.001	mg/l	U	0.018
Nickel as Ni	ICPMSW (Dissolved)	0.001	mg/l	U	0.006
Selenium as Se	ICPMSW (Dissolved)	0.001	mg/l	U	<0.001
Zinc as Zn	ICPMSW (Dissolved)	0.002	mg/l	U	0.061
Total Moisture at 35°C	CLANDPREP	0.1	%	N	1.5
Description of Solid Material	CLANDPREP		-	N	ASH
Equivalent Weight of Dry Material (kg)	Leachate Preparation CEN 10:1		kg	N	0.090
Fraction above 4mm (%)	Leachate Preparation CEN 10:1		%	N	0
Fraction of non-crushable material (%)	Leachate Preparation CEN 10:1		%	N	0
Volume of Water for 10:1 Leach (litr)	Leachate Preparation CEN 10:1		l	N	0.899
Weight of Sample Leached (kg)	Leachate Preparation CEN 10:1		kg	N	0.091
Total Moisture at 105°C	SUB022		%	N	2.6
Free Line Content	SUB051	0.1	%	N	26.38



Analysis Report

Report Number: 20/DEC/COA/813055

Supplier: Contaminated Land
PO Box 100
Ashby Road
Burton on Trent
Staffs

Site SOCOTEC BRETBY

Grade: 41293

Our Ref: SOCOTEC

Customer Ref: 20121058-002-6

Quote Ref:

Date Sampled: 12 December 2020

Date Received: 15 December 2020

Test Date: 15 December 2020 to 14 January 2021

Date Reported: 14 January 2021

Laboratory References

Sample Matrix WASTEFINES

Sample Number: 813055

6m Bottle:

72m Bottle:

Bio Bottle: 813055

Samples prepared using UKAS accredited methods in accordance with UKAS schedule No.0001

The results relate only to the sample tested

Analysis was undertaken at the following location(s):

SOCOTEC UK Limited, Bretby Business Park, Ashby Road, Burton upon Trent, DE15 0YZ

* Denotes calculated values.

** Non accredited method for this matrix.

*** Sub contracted test, UKAS accredited.

**** Sub contracted test, non-UKAS accredited.

Customer Supplied Result.

I/S Insufficient sample to test.

U/S unsuitable sample to test.

This sample was taken by SOCOTEC UK Limited

Report Authorised By:



For and on behalf of SOCOTEC UK Limited

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Analysis Report

Report Number: 20/DEC/COA/813055

Supplier: Contaminated Land
PO Box 100
Ashby Road
Burton on Trent
Staffs

Site SOCOTEC BRETBY

Grade: 41293

Our Ref: SOCOTEC

Customer Ref: 20121058-002-6

Laboratory References

Date Sampled: 12 December 2020

Sample Number: 813055

Date Received: 15 December 2020

6m Bottle:

Test Date: 15 December 2020 to 14 January 2021

72m Bottle:

Date Reported: 14 January 2021

Bio Bottle: 813055

Test	Method Reference	Units	Results Basis			
			As Received *	As Analysed	Dry *	Dry Ash Free *
Total Moisture	SP1 & CA1	%	0.7	-	-	-

Analysis Report Additional Tests

Report Number: 20/DEC/COA/813055

Supplier: Contaminated Land
PO Box 100
Ashby Road
Burton on Trent
Staffs

Site SOCOTEC BRETBY

Grade: 41293

Our Ref: SOCOTEC

Customer Ref: 20121058-002-6

Laboratory References

Date Sampled: 12 December 2020

Sample Number: 813055

Date Received: 15 December 2020

6m Bottle:

Test Date: 15 December 2020 to 14 January 2021

72m Bottle:

Date Reported: 14 January 2021

Bio Bottle: 813055

Method	Units	Test	Result
SP19a	gms	Sample Mass Received	34.1
SP19a	gms	Dry Weight	34.1
SP19a	gms	200g Sub Sample	< 200.0
SP19a	gms	+20mm Mass Removed	0.0
CA3a	%	LOI440	< 0.0
CA3a	%	LOI440 Whole Sample	< 0.0

--END OF REPORT--

Analysis Report

Report Number: 20/DEC/COA/813056

Supplier: Contaminated Land
PO Box 100
Ashby Road
Burton on Trent
Staffs

Site SOCOTEC BRETBY

Grade: 41293

Our Ref: SOCOTEC

Customer Ref: 20121058-003-6

Quote Ref:

Date Sampled: 12 December 2020

Date Received: 15 December 2020

Test Date: 15 December 2020 to 14 January 2021

Date Reported: 14 January 2021

Laboratory References

Sample Matrix WASTEFINES

Sample Number: 813056

6m Bottle:

72m Bottle:

Bio Bottle: 813056

Samples prepared using UKAS accredited methods in accordance with UKAS schedule No.0001

The results relate only to the sample tested

Analysis was undertaken at the following location(s):

SOCOTEC UK Limited, Bretby Business Park, Ashby Road, Burton upon Trent, DE15 0YZ

* Denotes calculated values.

** Non accredited method for this matrix.

*** Sub contracted test, UKAS accredited.

**** Sub contracted test, non-UKAS accredited.

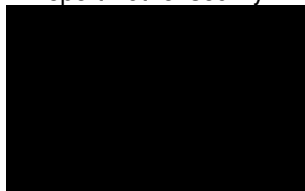
Customer Supplied Result.

I/S Insufficient sample to test.

U/S unsuitable sample to test.

This sample was taken by SOCOTEC UK Limited

Report Authorised By:



For and on behalf of SOCOTEC UK Limited

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Analysis Report

Report Number: 20/DEC/COA/813056

Supplier: Contaminated Land
PO Box 100
Ashby Road
Burton on Trent
Staffs

Site SOCOTEC BRETBY

Grade: 41293

Our Ref: SOCOTEC

Customer Ref: 20121058-003-6

Laboratory References

Date Sampled: 12 December 2020

Sample Number: 813056

Date Received: 15 December 2020

6m Bottle:

Test Date: 15 December 2020 to 14 January 2021

72m Bottle:

Date Reported: 14 January 2021

Bio Bottle: 813056

Test	Method Reference	Units	Results Basis			
			As Received *	As Analysed	Dry *	Dry Ash Free *
Total Moisture	SP1 & CA1	%	2.6	-	-	-

Analysis Report Additional Tests

Report Number: 20/DEC/COA/813056

Supplier: Contaminated Land
PO Box 100
Ashby Road
Burton on Trent
Staffs

Site SOCOTEC BRETBY

Grade: 41293

Our Ref: SOCOTEC

Customer Ref: 20121058-003-6

Laboratory References

Date Sampled: 12 December 2020

Sample Number: 813056

Date Received: 15 December 2020

6m Bottle:

Test Date: 15 December 2020 to 14 January 2021

72m Bottle:

Date Reported: 14 January 2021

Bio Bottle: 813056

Method	Units	Test	Result
SP19a	gms	Sample Mass Received	44.2
SP19a	gms	Dry Weight	44.2
SP19a	gms	200g Sub Sample	< 200.0
SP19a	gms	+20mm Mass Removed	0.0
CA3a	%	LOI440	5.6
CA3a	%	LOI440 Whole Sample	5.6

--END OF REPORT--

KIRTON CONCRETE SERVICES LTD.

INDEPENDENT TESTING LABORATORY

Manor House, Station Road, Hibaldstow, Brigg, North Lincolnshire, DN20 9EB, England
Telephone: (01652) 656931 Fax: (01652) 651082 E-mail Kirtonlab@aol.com

PFA TEST RESULTS to EN 450 :2012

Client	:-	SOCOTEC	
Our reference	:-	SOCOTEC 69	
Your reference	:-	20121058-002-7	
Order	:-	20121058.0	
Date received	:-	16-Dec-20	
Purchase Order Number	:-	20121058	
Date of tests	:-	16-Dec-20	to 21-Dec-20

RESULTS

Free Calcium oxide 7.06 %

Signature

KIRTON CONCRETE SERVICES LTD.

INDEPENDENT TESTING LABORATORY

Manor House, Station Road, Hibaldstow, Brigg, North Lincolnshire, DN20 9EB, England
Telephone: (01652) 656931 Fax: (01652) 651082 E-mail Kirtonlab@aol.com

PFA TEST RESULTS to EN 450 :2012

Client	:-	SOCOTEC	
Our reference	:-	SOCOTEC 70	
Your reference	:-	20121058-003-7	
Order	:-	20121058.0	
Date received	:-	16-Dec-20	
Purchase Order Number	:-	20121058	
Date of tests	:-	16-Dec-20	to 21-Dec-20

RESULTS

Free Calcium oxide 26.38 %

Signed.....



Client: Shetland Islands Council

Project Name: December Residue Analysis 2020

Project No: 20121058

Date Issued: 14/01/2021

<u>Deviating Sample Report</u>			Incorrect Container	Incorrect Label	Headspace	Incorrect/No Preservative	No Sampling Date	Holding Time	Handling Time
Sample Reference	Text ID	Reported Name							

Analysis Method

Analysis

CLANDPREP
ICPMSW (Dissolved)
Leachate Preparation CEN 10:1
LOI(%MM)
SUB022
SUB051
WSLM59

Analysis Type

PHYS
METALS
PHYS
INORGANIC
SUBCON
SUBCON
INORGANIC

Analysis Method

As Received
Filtered
As Received
Air Dried & Ground

Air Dried & Ground



Client: Shetland Islands Council

Project Name: December Residue Analysis 2020

Project No: 20121058

Date Issued: 14/01/2021

Additional Information

This report refers to samples as received, and SOCOTEC Uk Ltd takes no responsibility for accuracy or competence of sampling by others.

Results within this report relate only to the samples tested.

In the accreditation column of analysis report the codes are as follows:

U = UKAS accredited analysis

M = MCERT accredited analysis

N = Unaccredited analysis

Any units marked with ^ signify results are reported on a dry weight basis of 105 ° c

All Air Dried and Ground Samples (ADG) are oven dried at less than 35 ° c.

This report shall not be reproduced except in full and with approval from the laboratory.

Opinions and interpretations given are outside the scope of our UKAS accreditation.

Any samples marked with * are not covered by our scope of UKAS accreditation. If applicable, further report notes have been added.

Any solid samples where the Major Constituents are not one of the following (Sand, Silt, Clay, Made Ground) are not one of our accredited matrix types.

Any samples marked with ‡ have had MCERTS accreditation removed for this result

Any samples marked with a tick in the deviant table is deviant for the specific reason.

Any samples reported as IS, NA, ND mean the following:

IS = Insufficient Sample to complete analysis

NA = Sample is not amenable for the required analysis

ND = Results cannot be determined

Our deviating sample report does not include deviancy information for Subcontracted analysis. Please see the report from the Subcontracted lab for information regarding any deviancies for this analysis.

End of Certificate of Analysis