


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

 <p>UKAS TESTING</p> <p>7541</p> <p>Accredited to ISO/IEC 17025:2017</p>	<p>James Hutton Ltd – a commercial subsidiary of the James Hutton Institute</p> <p>Issue No: 016 Issue date: 02 February 2020</p>	
	<p>Craigiebuckler Aberdeen AB15 8QH</p>	<p>Contact: Mr G Newman Tel: +44 (0)1224 395113 E-Mail: Gareth.Newman@hutton.ac.uk Website: www.huttonltd.com</p>
<p>Testing performed at the above address only</p>		

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
BIOLOGICAL MATERIALS	<p><u>Chemical Tests</u></p> <p>Moisture Content and Loss of Material on Ignition</p> <p>Isotopes: ¹³C, ¹⁵N, Total Carbon, Total Nitrogen</p> <p>Qualitative identification / composition</p>	<p>Documented In-House Methods</p> <p>DM007 using Gravimetry</p> <p>AM002 using Continuous Flow Isotope Ratio Mass Spectrometry (CF-IRMS)</p> <p>FM001 using Fourier Transform - Infra Red Spectroscopy (FTIR)</p>
BOTANICAL MATERIAL AND ANIMAL FEEDINGSTUFFS	<p><u>Chemical Tests</u></p> <p>Total Carbon and Total Nitrogen</p>	<p>Documented In-House Methods</p> <p>DM001 using Elemental Analyser / Dumas Combustion</p>



7541
Accredited to
ISO/IEC 17025:2017

Schedule of Accreditation
issued by
United Kingdom Accreditation Service
2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

James Hutton Ltd
- a commercial subsidiary of the James Hutton Institute
Issue No: 016 Issue date: 02 February 2021

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
BOTANICAL MATERIAL AND ANIMAL FEEDINGSTUFFS (cont'd)	<u>Isotopic Tests</u> Isotopes: ¹³ C, ¹⁵ N, Total Carbon and Total Nitrogen	Documented In-House Methods AM002 using Continuous Flow Isotope Ratio Mass Spectrometry (CF-IRMS)
CHEMICAL PRODUCTS, CHEMICALS: ORGANIC CHEMICALS: INORGANIC	<u>Chemical Tests</u> Qualitative identification / composition Qualitative identification / characterisation Quantitative estimation of phase composition	Documented In-House Methods EM001 using Scanning Electron Microscopy (SEM) FM001 using FTIR GM001 and GM003 using XRD EM002 using EDS and SEM GM004 using X-ray Diffraction (XRD)
	<u>Isotopic Tests</u> Isotopes: ¹³ C, ¹⁵ N, Total Carbon and Total Nitrogen	Documented In-House Methods AM002 using Continuous Flow Isotope Ratio Mass Spectrometry (CF-IRMS)
FIBRE PRODUCTS – NATURAL / ARTIFICIAL	<u>Chemical Tests</u> Qualitative identification / composition	Documented In-House Methods EM001 using SEM FM001 using FT-IR EM002 using SEM and Energy Dispersing Spectroscopy (EDS)
PLASTICS AND PRODUCTS	<u>Chemical Tests</u> Qualitative identification / composition	Documented In-House Methods FM001 using FTIR



7541
Accredited to
ISO/IEC 17025:2017

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

James Hutton Ltd

- a commercial subsidiary of the James Hutton Institute

Issue No: 016 Issue date: 02 February 2021

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
ROCKS / GEOLOGICAL MATERIALS, SEDIMENTS AND SOILS, CLAY AND CLAY PRODUCTS	<p><u>Geological Tests</u></p> <p>Semi-quantitative mineralogical composition</p> <p>Qualitative identification / characterisation</p> <p>Qualitative X-ray mapping</p> <p>Quantitative estimation of mineralogical composition</p> <p>Cation Exchange Capacity using Cobalt Hexamine Trichloride</p>	<p>Documented In-House Methods</p> <p>GM005 using XRD</p> <p>GM001 and GM003 using XRD FM001 using FTIR EM001 using SEM EM002 using EDS and SEM</p> <p>EM003 using EDS and SEM</p> <p>GM002 and GM004 using X-ray Diffraction (XRD)</p> <p>GM006 by colorimetry using a Discrete Analyser</p>
ROCKS / GEOLOGICAL MATERIALS, SEDIMENTS AND SOILS	<p><u>Isotopic Tests</u></p> <p>Isotopes: Nd, Sm and Sr</p>	<p>Documented In-House Methods</p> <p>AM004 and AM005 using Thermal Ionisation Mass Spectrometry (TIMS)</p>
PARTICULATE MATTER, SEDIMENTS AND SOILS, CLAY AND CLAY PRODUCTS,	<p><u>Physical Tests</u></p> <p>Particle size distribution</p>	<p>Documented In-House Methods</p> <p>DM011 using laser diffraction particle size analyser</p>
SEDIMENTS AND SOILS	<p><u>Chemical Tests</u></p> <p>Exchangeable acidity</p> <p>Exchangeable cations: Ca, Mg, Na, K</p> <p>Moisture Content and Loss of Material on Ignition</p>	<p>Documented In-House Methods</p> <p>DM002 using Titration</p> <p>DM004 Extraction Procedure BM014 using ICP-OES</p> <p>DM007 using Gravimetry</p>



7541
Accredited to
ISO/IEC 17025:2017

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

James Hutton Ltd

- a commercial subsidiary of the James Hutton Institute

Issue No: 016 Issue date: 02 February 2021

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SEDIMENTS AND SOILS (cont'd)	<u>Chemical Tests</u> (cont'd) Nutrients: Ca, Mg, K, P Total Carbon and Total Nitrogen pH Phosphorus	Documented In-House Methods DM005 Extraction Procedure BM014 by ICP-OES DM001 using Elemental Analyser / Dumas Combustion DM006 using Glass Electrode DM003 sodium hydroxide fusion and BM003 using a Discrete Analyser
SEDIMENTS AND SOILS	<u>Isotopic Tests</u> Isotopes: ¹³ C and ¹⁵ N	Documented In-House Methods AM002 using Continuous Flow Isotope Ratio Mass Spectrometry (CF-IRMS)
WATER / WATERS	<u>Chemical Tests</u> Alkalinity, ammonium, nitrite phosphate, total oxidisable nitrogen and nitrate (by calculation) Anions: chloride, nitrate and sulphate pH	Documented In-House Methods BM003 using a Discrete Analyser BM002 using Ion Chromatography DM006 using Glass Electrode



7541
Accredited to
ISO/IEC 17025:2017

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

2 Pine Trees, Chertsey Lane, Staines-upon-Thames, TW18 3HR, UK

James Hutton Ltd

- a commercial subsidiary of the James Hutton Institute

Issue No: 016 Issue date: 02 February 2021

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>WATERS (and soil extracts)</p> <p>FLEXIBLE SCOPE ENCOMPASSING: ROCKS / GEOLOGICAL MATERIALS, SEDIMENTS, SOILS, ANIMAL TISSUE, LEACHATES, WATERS, CHEMICAL PRODUCTS (Liquids, Solids, Organic, Inorganic) ANIMAL FEEDINGSTUFFS, BOTANICAL MATERIAL, CROPS</p>	<p><u>Chemical Tests</u></p> <p>Conductivity</p> <p>Total Organic Carbon (TOC) Total Nitrogen (TN)</p> <p><u>Isotopic Tests</u></p> <p>Isotopes: Sr</p> <p><u>Chemical Tests</u></p> <p>Inorganic elements <i>The organisation holds a flexible scope of accreditation for these tests. Please contact the organisation for details of the further individual determinands they can analyse using this method.</i></p>	<p>Documented In-House Methods</p> <p>DM012 by Glass Electrode</p> <p>BM019 using Non-dispersive Infra-Red Spectroscopy and Chemiluminescence</p> <p>Documented In-House Methods</p> <p>AM005 using Thermal Ionisation Mass Spectrometry (TIMS)</p> <p>Documented In-House Method by acid digestion method DM009 and Inductively Coupled Plasma – Optical Emission Spectroscopy (ICP-OES), Developed and Validated according to Method BM014 (flexible scope)</p> <p>Documented In-House Method acid digestion method DM009 and by Inductively Coupled Plasma – Mass Spectrometry (ICP-MS), Developed and Validated according to Method BM015 (flexible scope)</p>
END		