


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

 <p><b>UKAS TESTING</b> 1875</p> <p>Accredited to <b>ISO/IEC 17025:2005</b></p>	<h3>Cefas Lowestoft Laboratory</h3> <p><b>Issue No: 021 Issue date: 27 September 2018</b></p>	
	<p><b>Pakefield Road</b> <b>Lowestoft</b> <b>Suffolk</b> <b>NR33 0HT</b></p>	<p><b>Contact: Fiona Skelding</b> <b>Tel: +44 (0)1502 524444</b> <b>Fax: +44 (0)1502 513865</b> <b>E-Mail: <a href="mailto:fiona.skelding@cefas.co.uk">fiona.skelding@cefas.co.uk</a></b> <b>Website: <a href="http://www.cefas.co.uk">www.cefas.co.uk</a></b></p>
<p><b>Testing performed at the above address only</b></p>		

### DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
<p>BIOTA, BOTANICAL MATERIALS, FISH and SHELLFISH, FOODS and FOOD PRODUCTS, MOLLUSCS, SOILS and SEDIMENTS, WATERS and EFFLUENTS</p>	<p><u>Radiochemical Analysis</u></p> <p>Sample preparation methods</p>	<p>Documented In-House Methods:</p> <p>1613 (RCT 1A) 1614 (STO 1A) 1615 (STO 2A) 1616 (WPD 1A marine fish) 1617 (WPD 2A freshwater fish) 1618 (WPD 3A shellfish, crustacea) 1619 (WPD 4A shellfish, molluscs) 1620 (WPD 5A marine and freshwater weeds) 1621 (WPD 6A soils and sediments) 1623 (ODS 1A oven drying) 1624 (GHG 1A dry biota) 1625 (GHG 2A soils and sediments) 1626 (PSC 1A liquids) 1628 (PSC 2A tub and disc geometries) 1629 (MFA 1A ashing) 1627 (WPD 8A terrestrial foods) covering methods for storage and preparation of sample types including: drying, grinding, ashing and homogenisation of samples</p>



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BIOTA, BOTANICAL MATERIALS, FISH and SHELLFISH, FOODS and FOOD PRODUCTS, MOLLUSCS, SOILS and SEDIMENTS, WATERS and EFFLUENTS (cont'd)	<u>Determination of alpha emitting radionuclides</u>	Documented In-House Methods: for radiochemical separation and source preparation of alpha emitters. Alpha spectrometric counting - calibration and performance checking of alpha spectrometers and sample counting
	<u>Non-Uranic Actinides</u>	
	Americium - <sup>241</sup> Am Plutonium - <sup>239+240</sup> Pu, <sup>238</sup> Pu Curium - <sup>242</sup> Cm, <sup>243+244</sup> Cm	1648(ARS 1A), 1649(ABP 1A), 1650 (SSP 1A), 1651 (SSP 2A) 1652 (SSP 3A), 1653 (REP 1A), 1654 (CIS 1A), 1655 (QCS 1A) 1656 (PRS 1A), , 1658 (ASU 1A)
	<u>Determination of alpha emitting radionuclides</u>	Documented In-House Methods: for radiochemical separation and source preparation of natural alpha emitters. Alpha spectrometric counting - calibration and performance checking of alpha spectrometers and sample counting
	Lead - <sup>210</sup> Pb, and Polonium - <sup>210</sup> Po	1663 (NAT 5A)
	<u>Determination of Beta emitting radionuclides</u>	Documented In-house methods using liquid scintillation
	Strontium - <sup>90</sup> Sr	1659 (SSP7A)
	Technetium - <sup>99</sup> Tc	1665 (SSP 6A) and
	Carbon - <sup>14</sup> C	1666 (SSP 9A) and
BIOTA, BOTANICAL MATERIALS, SOILS AND SEDIMENTS, EFFLUENTS AND WATERS INCLUDING POTABLE WATERS	Tritium - <sup>3</sup> H	1633 (DTM 1A)
BIOTA AND SEDIMENTS	Gross Alpha Activity - relative to Am-241 Gross Beta Activity - relative to K-40	Documented In-house method using proportional counting – 1674 (TB1A)



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BIOTA, BOTANICAL MATERIALS, FISH and SHELLFISH, FOODS and FOOD PRODUCTS, MOLLUSCS, SOILS and SEDIMENTS, WATERS and EFFLUENTS	Quantitative analysis using gamma spectrometry (Energy Range: 60 keV - 2000 keV)	Documented In-House methods covering calibration and performance checking of gamma spectrometers, sample analysis, and data interpretation.  1634 (HPA 1A), 1635 (SRD 1A), 1636 (TRG 1A), 1637 (SGC 1A), 1638 (SGC 2A), 1639 (SGC 3A), 1640 (ULS 1A), 1641 (IRS 1A), 1642 (ERA 1A), 1643 (SCS 1A), 1644 (ECD 1A), 1645 (SPC 1A) 1646 (ASU 1A), 1647 (DSA 1A)
Milk, dairy products, vegetables, fruits, meat products, fish, cereals, grass, seaweed, honey	Carbon - 14C, Tritium - 3H	Method 2241 using furnace combustion with liquid scintillation counting
Sediment	<u>Chemical Tests</u>  Polychlorinated Biphenyls: PCB 18 PCB 28 PCB 31 PCB 44 PCB 47 PCB 49 PCB 52 PCB 66 PCB 101 PCB 105 PCB 110 PCB 118 PCB 128 PCB 138 PCB 141 PCB 149 PCB 151 PCB 153 PCB 156 PCB 158 PCB 170 PCB 180 PCB 183	Documented In-House Method:  Using GC-ECD SOPs 1410, 1411, 1780, 1779, 1778 and 1415



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Sediment (cont'd)	<u>Chemical Tests</u> (cont'd)  Polychlorinated Biphenyls: (cont'd) PCB 187 PCB 194 SUM OF 25 PCBs ICES 7 (PCB 28, 52, 101, 118, 138, 153, 180)  Total Solids  Trace Metals: Arsenic Cadmium Chromium Copper Lead Mercury Nickel Zinc	Documented In-House Method:  Using GC-ECD SOPs 1410, 1411, 1780, 1779, 1778 and 1415  Gravimetric determination, SOP 2025  Using ICP-MS and ICP AES SOPs 2037, 2043 and 2161
Sediment	Trace Metals: Aluminium Arsenic Cadmium Chromium Copper Iron Lead Lithium Manganese Mercury Nickel Rubidium Vanadium Zinc	Using ICP-MS and ICP-OES after Total (HF) microwave digestion SOPs 2155, 2156, 2157
Biota and Sediment	Total Hydrocarbon concentration	Using spectrofluorimetry SOPs 1597,1598 and 1599



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Biota	<u>Chemical Tests</u> (cont'd)  Trace Metals:  Arsenic Cadmium Chromium Copper Iron Lead Manganese Mercury Nickel Selenium Zinc	Documented In-House Method:  Using ICP-MS and ICP OES SOPs 1418, 1419, 2160
Biota	Total Solids	Documented in-house method SOP 1592
Shellfish	Polycyclic aromatic hydrocarbons (PAHs):  Naphthalene 1-C1-N (1-methylnaphthalene) 2-C1-N(2-methylnaphthalene) sum C1-Naphthalenes C2-Naphthalenes Acenaphthylene C3-Naphthalenes Acenaphthene Fluorene Dibenzothiophene C1-DBT (methyldibenzothiophene) C2-DBT(dimethyldibenzothiophene) C3-DBT(trimethyldibenzothiophene) Phenanthrene Anthracene 2-C1-P (2-methylphenanthrene) 2-C1-A( 2-methylanthracene) 1-C1-P (1 methylphenanthrene) (C2-P) dimethylphenanthrene Fluoranthene Pyrene C1-Pyrene BnThio (1,2-Benzodiphenylene sulphide)	SOP 2235 using solvent extraction and GC-MS determination



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Shellfish (cont'd)	<u>Chemical Tests</u> (cont'd) Polycyclic aromatic hydrocarbons (PAHs): (cont'd)  Benz[a]anthracene Chrysene C1-Chrysene (methylchrysene) Benzo[b]fluoranthene Benzo[k]fluoranthene Benzo[e]pyrene Benzo[a]pyrene Perylene Indeno[123-cd]pyrene Dibenzo(a,h)anthracene Benzo[ghi]perylene	Documented In-House Method:  SOP 2235 using solvent extraction and GC-MS determination
MARINE WATERS	<u>Biological Analysis</u>  Identification and Enumeration of Marine Phytoplankton	Documented In-house methods SOP 1508, 1509 and 1510 by light microscopy
FISH OTOLITHS	Age determination	Documented In-house methods SOPs 2034, 2036 & 2050 using light microscopy to count rings on ear slides
END		