


# Schedule of Accreditation

issued by

## United Kingdom Accreditation Service

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

 <p><b>1765</b></p> <p>Accredited to ISO/IEC 17025:2017</p>	<b>Alfred H Knight Energy Services Ltd</b>	
	<b>Issue No: 039    Issue date: 04 January 2021</b>	
	<b>Unit 1</b> <b>Palmermount Industrial Estate</b> <b>Bypass Road</b> <b>Dundonald</b> <b>Kilmarnock</b> <b>Ayrshire</b> <b>KA2 9BL</b>	<b>Contact: Mr John Watt</b> <b>Tel: +44 (0)1563 850375</b> <b>Fax: +44 (0)1563 850830</b> <b>E-Mail: john.watt@ahkgroup.com</b> <b>Website: www.ahkgroup.com</b>
<b>Testing performed by the Organisation at the locations specified below</b>		

### Locations covered by the organisation and their relevant activities

#### Laboratory locations:

Location details	Activity	Location code
<b>Address</b> Unit 1 Palmermount Industrial Estate Bypass Road Dundonald Kilmarnock Ayrshire KA2 9BL	<b>Local contact</b> Mr John Watt Tel: +44 (0)1563 850375 Fax: +44 (0)1563 850830 Email: john.watt@ahkgroup.com Website: www.ahkgroup.com	Fuels - Chemical and Physical Tests  A
<b>Address</b> Weir Road Ayr KA8 8DB	<b>Local contact</b> Mr John Watt Tel: +44 (0)1475 850375 Fax: +44 (0)1475 850830 Email: john.watt@ahkgroup.com Website: www.ahkgroup.com	Fuels - Chemical and Physical Tests  B
<b>Address</b> LMA cv De Hoogjens 36 4254 XW Sleeuwijk Netherlands	<b>Local contact</b> Arno Kant Tel: +31 (0)183 307050 Fax: +31 (0)183 304502 Email: arno.kant@lma-xrf.nl	Fuels - Chemical and Physical Tests  C

#### Site activities performed away from the locations listed above:

Location details	Activity	Location code
Premises away from the main Laboratories	Fuels - Sampling	D



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DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
COAL, COKE	<u>Chemical and Physical Tests</u>		
	Sampling	Documented In-House Method KES/93/Prep-C conforming to: BS ISO 18283:2006	A, B, C, D
	Sample Preparation	Documented In-House Method LMA/93/Prep-C conforming to: BS ISO 18283:2006	B, C
	Hardgrove Grindability Index (HGI)	Documented In-House Method SM041 (using Hardgrove Machine) based on: BS ISO 5074:2015; and ASTM D409	B, C
	Free Swelling Index (Crucible Swelling Number)	Documented In-house Method SM010 based BS ISO 501:2012	A
	Free Swelling Index (Crucible Swelling Number)	Documented In-house Method LSM010 based on BS ISO 501:2012	C
	Grey King Coke Type	Documented In-house Method SM011 based on BS 1016 Section 107.2:1991 and BS ISO 502:2015	A
COAL	Trace Elements: As, Ba, Be, Cd, Co, Cr, Cu, Hg, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn, B, Ti, U, Sn, Te	Documented In-House Method SM044 (using ICP-MS) conforming to: BS ISO 23380:2008; and ASTM D6357:2011	A
SOLID BIOFUELS	Sampling	Documented In-House Method KES/93/Prep-B conforming to: BS EN 14778:2011; BS EN ISO 14780:2017;	A, C, D



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
SOLID BIOFUELS (cont'd)	<u>Chemical and Physical Tests</u> (cont'd)		
	Sample Preparation	Documented In-House Method LMA/93/Prep-B conforming to: BS EN 14778:2011; BS EN ISO 14780:2017;	A, C
	Minor Elements: As, Ba, Be, Cd, Co, Cr, Cu, Hg, Mn, Mo, Ni, Pb, Sb, Se, Tl, V, Zn, B, Ti, U, Sn, Te	Documented In-House Method SM044 (using ICP-MS) conforming to: BS EN 15290:2011; and ISO BS EN 16968:2015	
	Particle Size Distribution	Documented In-House Method SM048 conforming to BS EN ISO 17827:Part 1 :2016	A
SOLID BIOFUELS (including WOOD PELLETS) and ASH	Particle Size Distribution: <3.15mm	Documented In-House Method SM049 conforming to BS EN ISO 17827: Part 2:2016	A
SOLID BIOFUELS	Particle Size Distribution of Disintegrated Pellets	Documented In-House Method SM049 conforming to BS EN ISO 17830:2016	
WOOD PELLETS	Length Diameter	Documented In-House Method SM048 conforming to BS EN ISO 17829:2015	A
SOLID BIOFUELS (including WOOD PELLETS), ASH and SOLID RECOVERED FUELS	Bulk Density	Documented In-House Method SM050 conforming to: BS EN ISO 17828:2015 and DD CEN/TS 15401:2010	A
COAL, COKE AND SOLID BIOFUELS	Major and Minor Elements	Documented In-House Method SM040 (using X-Ray Fluorescence Spectrometry) conforming to: ISO/CD 13605; PD ISO/TS 16996:2015 and ASTM D4326	C
SOLID RECOVERED FUELS	Sample Preparation	Documented In-House Method KES/93/Prep-S conforming to: BS EN 15442:2011; BS EN 15443:2011; BS EN 15413:2011;	A



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SOLID RECOVERED FUELS (cont'd)	<u>Chemical and Physical Tests</u> (cont'd) Minor Elements: As, Ba, Be, Cd, Co, Cr, Cu, Hg, Mn, Mo, Ni, Pb, Sb, Se, Ti, V, Zn, B, Ti, U, Sn, Te	Documented In-House Method SM044 (using ICP-MS) conforming to: BS EN 15410:2011; and BS EN 15411:2011	A
COAL, COKE, SOLID BIOFUELS, PEAT and SOLID RECOVERED FUELS	<u>Chemical and Physical Tests</u> (cont'd) Chlorine and Fluorine	Documented In-House Method SM045 (using Ion Chromatography) conforming to: BS EN ISO 16994:2016 and BS EN 15408:2011	A
COAL	Chlorine and Fluorine	Documented In-House Method LSM045 (using Ion Chromatography) based on ASTM D3761, ASTM D4208, and BS EN 15408:2011	C
COAL	Mercury	Documented In-House Method LSM046 (using dedicated mercury analyser) based on ASTM D6722	C
COAL, COKE, SOLID BIOFUELS, SOLID RECOVERED FUELS, PEAT, SOILS, COLLIERY SPOIL and HIGH ASH MATERIALS	Total Moisture	Documented In-House Method SM030 (Gravimetric Determination) conforming to: BS 1016: 1:1973 ISO 589:2008 ISO 579:2013 ISO BS EN 18134-2:2015 CEN/TS 15414, Part 2; 2010	A, B, C
	Analysis Moisture	Documented In-House Method SM031 (Gravimetric Determination) conforming to: ISO 11722:2013 ISO 687:2010 ISO BS EN 18134-3:2015 BS EN 15414 (3):2011	A, C



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COAL, COKE, SOLID BIOFUELS, SOLID RECOVERED FUELS, PEAT, SOILS, COLLIERY SPOIL and HIGH ASH MATERIALS (cont'd)	<u>Chemical and Physical Tests</u> (cont'd)		
	Ash	Documented In-House Method SM033 (Gravimetric Determination) based on: ISO 1171:2010 BS EN ISO 18122:2015 BS EN 15403:2011; ASTM D3174;	A, C
	Total Sulphur	Documented In-House Method SM 034 (using combustion Infra-Red Analyser) conforming to: ASTM D4239; ISO 17247; and BS EN ISO 16994:2015	A
	Volatile Matter	Documented In-House Method SM032 (Gravimetric Determination) conforming to: BS ISO 562;2010 ASTM D3175; BS EN ISO 18123:2015 BS EN 15402:2011;	A, C
	Carbon Hydrogen Nitrogen	Documented In-House Method SM 035 (based on Instrumental Determination) conforming to: ASTM D5373; ASTM D2013; ISO BS EN 16948:2015 BS EN 15407:2011; BS ISO 29541:2010	A



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COAL, COKE, SOLID BIOFUELS, SOLID RECOVERED FUELS, PEAT, SOILS, COLLIERY SPOIL and HIGH ASH MATERIALS (cont'd)	<u>Chemical and Physical Tests</u> (cont'd)		
	Carbon Hydrogen Sulphur	Documented In-House Method LSM 035 (based on Instrumental Determination) conforming to: ASTM D5373; ASTM D2013; ISO BS EN 16948:2015 BS EN 15407:2011; BS ISO 29541:2010 and ASTM D4239	C
	Gross Calorific Value	Documented In-House Method SM 036 (using Bomb Calorimetry) conforming to: BS ISO 1928:2009 BS EN ISO 18125:2017 BS EN 15400:2011; ASTM D5865;	A, C
COAL, COKE, SOILS, COLLIERY SPOIL and HIGH ASH MATERIALS	Calculation of Net Calorific Value	Documented In-House Method SM 037 conforming to: BS ISO 1928;2009 BS EN ISO 18125 ; 2017BS EN 15400:2011; ASTM D5865;	A, C
	Calculation of Fixed Carbon	Documented In-House Method SM 022 conforming to: BS 1016, Part 100:1994 ASTM D3172	A, C
	Biomass Content	Documented In-House Method SM 042 (using Selective Dissolution Method) conforming to: BS EN 15440:2011 (Annex A)	A
BIOFUELS, SOLID RECOVERED FUELS and other CARBONACEOUS MATERIALS	Biomass and Fossil Energy Content	Documented In-House Method SM 046 based on "Template Methodology for measuring fossil derived contamination within waste wood" Ofgem Guidance Note 9 February 2011.	A



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	<u>Chemical and Physical Tests</u> (cont'd)		
SOLID BIOFUELS: PELLETS and BRIQUETTES	Mechanical Durability	Documented In-House Method SM 043 (using Pellet Tester) conforming to: ISO BS EN 17830:2016	A
COAL, SOLID BIOFUEL and SOLID RECOVERED FUELS	Carbonate Content and Calculation of Organic Carbon Content	Documented In-House Method SM 047 (by Titrimetry) conforming to: BS 1377-3:1990	A
	Ash Fusion Temperature	Documented In-House Method SM017 (using Ash Fusion Furnace) conforming to: ISO 540; ASTM D1857; and CEN/TS 15370 Part 1:2006 CEN/TS 15404:2010	A, C
COAL, COKE, SOLID BIOFUELS, SOLID RECOVERED FUELS	Loss on Ignition at specified temperatures inc 440C, 815C, 550C	Documented In-House Method SM052 based on BS ISO 1171:2010 BS ISO 18122:2015 BS EN 15403:2011 and BS EN 15169:2007	A
TROMMEL FINES	Loss on Ignition at specified temperatures inc 440C, 815C, 550C	Documented In-House Method SM052 in accordance with HMRC document LFT1	A



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<b>METALS, ALLOYS AND METAL PRODUCTS</b>	<u>Chemical and Physical Tests</u>		
Chrome Ore, Ferrochromium and Ferrosilicochromium	Chromium	Documented In-House Method LMS 111 (by Titrimetry) conforming to ISO 4140:1979 and ISO 6331:1983	C
Ferrotungsten	Tungsten	Documented in-house method LMS151 (by fused bead X-Ray Fluorescence Spectrometry)	C
Ferromolybdenum	Molybdenum Silicon Copper Phosphorus	Documented in-house method LMS152 (by fused bead X-Ray Fluorescence Spectrometry)	C
Ferroalloys	Carbon Sulphur	Documented in-house method LMS101 (using combustion-IR analyser)	C
Ferroalloys (cont'd)	Oxygen Nitrogen	Documented in-house method LMS102 (using combustion-IR analyser)	C
Manganese Ore	Manganese Iron Silicon Aluminium Phosphorous Titanium Magnesium Calcium	Documented in-house method LMS176 (by fused bead X-Ray Fluorescence Spectrometry) based on ISO 12677	C
Iron Ore	Manganese Iron Silicon Aluminium Phosphorous Titanium Magnesium Calcium	Documented in-house method LMS177 (by fused bead X-Ray Fluorescence Spectrometry) based on ISO 12677 and ISO 9516	C

END