

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 1314 Accredited to ISO/IEC 17025:2005	ALS Environmental Ltd Coventry	
	Issue No: 124 Issue date: 15 February 2019	
	Torrington Avenue Coventry West Midlands CV4 9GU	Contact: Ms C Peacock Tel: +44 (0)2476 856458 Fax: +44 (0)2476 856575 E-Mail: claire.peacock@alsglobal.com Website: www.alsenvironmental.co.uk
Testing performed by the Organisation at the locations specified		

Locations covered by the organisation and their relevant activities

Laboratory locations:

Location details	Activity	Location code
Address ALS Environmental Ltd Torrington Avenue Coventry West Midlands CV4 9GU Local contact: Ms C Peacock	Water Microbiology, Environmental Chemistry, Occupational Hygiene & Environmental Monitoring Analysis Support Functions: Quality Management including document control, auditing and quality control	A
Address ALS Environmental Ltd Sparrowgrove Waterworks Road Otterbourne Hampshire SO21 2SW Local contact: Ms C Peacock	Water Microbiology, Environmental Chemistry, Support Functions: Quality Management including document control, auditing and quality control	O
Address ALS Environmental Ltd Unit L Dundyvan Enterprise Park Coatbridge North Lanarkshire ML5 4AQ Local contact: Mr J Mace	Water Microbiology Support Functions: Quality Management including document control, auditing and quality control	C



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Site activities performed away from the locations listed above:

Location details	Activity	Location code
Waste Water Treatment Works Water Treatment Works	Sampling and on-site testing	B
Customer Sites requiring Gas sampling	Sampling of Landfill gases Sampling of Biogenic gases	B
Customer Sites requiring Waste water sampling	Sampling of Ground, Surface and Trade effluent sampling	D
Customer Sites requiring sampling for Legionella analysis	Sampling of Drinking Water (non-regulatory), Process Water and Recreational water	D

This schedule is ordered as follows:

Section 1

ISO 17025 + DWTS

Microbiology and Cryptosporidium

Drinking Water Sampling

Section 2

ISO 17025 + MCERTS (waters)

Organic Chemistry

Inorganic chemistry

Waste Water Sampling

Section 3

ISO 17025 only

Asbestos

Inorganic chemistry Soils

Inorganic chemistry Waters

Organic chemistry Soils

Organic chemistry Waters

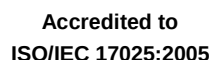
Microbiology

Section 4

ISO/IEC 17025 + DWTS/DWQR Microbiology Coatbridge

Microbiology

Note: Accreditation to MCERTS automatically confers an equivalent accreditation to ISO 17025.



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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
SECTION 1			
WATERS	Microbiology and Cryptosporidium <u>Microbiological Tests</u> Testing for the purpose of enforcement of the Water Supply (Water Quality) Regulations 2016 (SI 614). The testing is in accordance with the Drinking Water Testing Specification (DWTS) Enumeration:	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication “The Microbiology of Drinking Water” unless stated otherwise	
Drinking Water, Ground Water, Surface Water	Coliforms presumptive and confirmed	W10 based on “The Microbiology of Drinking Water”, Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	A, O
Drinking Water, Ground Water, Surface Water	<i>Escherichia coli</i> presumptive and confirmed	W10 based on “The Microbiology of Drinking Water”, Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation	A, O
Drinking Water, Ground Water, Surface Water	Enterococci, presumptive and confirmed	W7 based on “The Microbiology of Drinking Water”, Part 5 using membrane filtration followed by traditional or protein profiling confirmation	A, O



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WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)		
Drinking Water, Ground Water, Surface Water	Sulphite reducing clostridia, including <i>clostridium perfringens</i> presumptive and confirmed	W8 based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation.	A, O
Drinking Water, Ground Water, Surface Water	Total aerobic micro-organisms at 22°C, 37°C & 30°C	W1 based on "The Microbiology of Drinking Water", Part 7 using pour plate	A, O
Drinking Water, Ground Water, Surface Water	Cryptosporidium	Documented procedures CRYM1 , CRYM2 , & CRYM3 FiltaMax® and FiltaMax Xpress™, Immuno fluorescent staining for identification by microscopy based on "The Microbiology of Drinking Water" Part 14 (2010)	A
Drinking Water	Quantitative Taste & Odour	W56 Determination of Taste & Odour in Drinking Water (2014)	A
Raw Water	Quantitative Odour	W56 Determination of Taste & Odour in Drinking Water (2014)	A
	<u>Biological Tests</u>		
Drinking Water, Surface Water	Algae	W44 using microscopic examination	A
Drinking Water, Surface Water	Zooplankton (including veligers)	W46 using macroscopic examination	A
Surface Water	Chlorophyll Phaeophytin	W45 by Spectrophotometry	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests</u>	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Drinking Water" unless stated otherwise	
Drinking Water, Surface Water, Ground Water	Turbidity	OCM1 Turbidimeter	O
Drinking Water, Surface Water, Ground Water	Electrical Conductivity	OCM2 by manual technique	O
Drinking Water, Surface Water, Ground Water	pH	OCM3 by manual technique	O
Drinking Water, Surface Water, Ground Water	Colour	OSM4 by manual technique	O
Drinking water from customer taps and service reservoirs	Sampling for the purpose of enforcement of the Water Supply (Water Quality) Regulations 2016 (SI 614)	Methodology meeting the requirements of the Drinking Water Testing Specification	B
	<u>Sampling for:</u> Chemical, Microbiological and Cryptosporidium analysis	In house method POT1	B
	On site Chemical Testing for: Total Residual Chlorine Free Residual Chlorine Temperature	In house method POT 3	B



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
SECTION 2			
WASTE WATERS	Organic Chemistry Waters <u>Chemical Tests</u>	Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - sampling and chemical testing of untreated sewage, sewage effluent and trade effluent	
Trade Effluent (to sewer and controlled waters), Treated Sewage	Chloroform Benzene Trichloroethene	GEO 56 using Headspace GCMS	A
Trade Effluent (to sewer and controlled waters), Treated Sewage	Phenols (high and low level): phenol	GEO 18 using GCMS	A
Treated Sewage	tris(2-chloroethyl)phosphate tris(2-chloropropyl)phosphate	Method 326 using GCMSMS	A
Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Pyridine	GEO 62 using liquid – liquid extraction and GCMS	A
Trade Effluent (to sewer), Treated Sewage	Acid Herbicides: 4-Chloro-2-Methylphenol 2,4-Dichlorophenol 2,4,6-Trichlorophenol 4- Chlorophenoxyacetic Acid MCPP (Mecoprop) MCPA 2,4- DP (Dichlorprop) 2,4-D Bromoxynil 2,4,5-TP (Fenoprop) Pentachlorophenol 2,4,5-T MCPB 2,4-DB Ioxynil	GEO 73 using SPE and GCMSMS	A



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WASTE WATERS (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - sampling and chemical testing of untreated sewage, sewage effluent and trade effluent	
Trade Effluent (to sewer), Treated Sewage	Pesticides: 1,2,4-TCB Dichlorvos Aldrin Isodrin Endrin Dieldrin alpha-HCH beta-HCH gamma-HCH Atrazine Simazine Chlorfenvinphos Diazinon cis-Permethrin trans-Permethrin Total Permethrin (sum of cis and trans) Cyfluthrin Cypermethrin Hexachlorobenzene Propetamphos Triazophos alpha-Endosulphan beta-Endosulphan op-DDE pp-DDE op-DDT pp-DDT pp-TDE	GEO 47 using liquid – liquid extraction and GCMSMS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	Inorganic Chemistry Waters <u>Chemical Tests</u> (cont'd)	Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - sampling and chemical testing of untreated sewage, sewage effluent and trade effluent	
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	Metals: Aluminium Cadmium Chromium Cobalt Copper Iron Lead Manganese Nickel Zinc Total Phosphorus	WAS049 using ICP-OES	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	Metals: Aluminium Antimony Arsenic Cadmium Chromium Cobalt Copper Iron Lead Manganese Nickel Tin Zinc	WAS060 using ICP-MS	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	pH	WAS039 using Manual and automated pH probe	A



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WASTE WATERS (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - sampling and chemical testing of untreated sewage, sewage effluent and trade effluent (cont'd)	
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	Colour Scan	WAS027 using UV/Vis spectrophotometry	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	Suspended Solids	WAS006 using gravimetric analysis	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	BOD	WAS001 using BOD robot and oxygen probes	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	COD	WAS040 using closed digestion with HACH and Palintest colorimetric analysis	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	Total Mercury	WAS013 using Cold vapour fluorescence	A
Trade Effluent (to sewer and controlled waters), Treated Sewage, Untreated Sewage	Nitrogen total	WAS022 Continuous flow with UV/persulphate oxidation	A
Treated Sewage	Cyanide: total, free and complex	WAS018 Continuous flow with UV digestion where required	A
Treated Sewage	Turbidity	WAS066 Turbidimeter	A
Treated Sewage	Phenols Monohydric colorimetric	WAS019 Continuous flow	A



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WASTE WATERS (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - sampling and chemical testing of untreated sewage, sewage effluent and trade effluent (cont'd)	
Treated Sewage, Untreated Sewage	Ammonia, Total Oxidised Nitrogen (TON)	WAS036 using Konelab discrete analyser	A
Treated Sewage	Ammonia	WAS067 using Konelab discrete analyser	A
Treated Sewage	Soluble Reactive Phosphorus (orthophosphate)	WAS036 using Konelab discrete analyser	A
Treated Sewage, Untreated Sewage, Trade Effluent (to Controlled Water)	Total & Dissolved Metals: Aluminium Phosphorus Chromium Iron Manganese Cobalt Nickel Copper Zinc Arsenic Cadmium Antimony Lead	WAS076 by ICPMS	A



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WASTE WATERS (cont'd) Waste Water Treatment Works Water Treatment Works Trade effluent to controlled water WASTE WATERS Waste Water Treatment Works and Water Treatment Works Untreated sewage Treated sewage effluent Trade Effluent to controlled water Untreated and Treated Sewage Effluents	Waste Water Sampling and on-site testing <u>Chemical Tests</u> (cont'd) On-site measurement of: Total chlorine Free chlorine Sampling For: Chemical Testing Automated sampling (UWWTD) For: Chemical Testing	Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard – sampling and chemical testing of untreated sewage, sewage effluent and trade effluent OSM 11 using colorimetry (meter) Method OSM 05 using manual spot sampling Method UWW 01 using automated composite samplers	B B B



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
SECTION 3			
<u>Bulk ID</u>	Asbestos	Documented In-House Methods based on HSG 248:February 2005	
ASBESTOS IN BULK MATERIALS including materials and products suspected of containing asbestos	Identification of: Amosite Chrysotile Crocidolite Fibrous Actinolite Fibrous Anthophyllite Fibrous Tremolite	Method 70 using stereo-microscopy, polarised light optical microscopy and dispersion staining	A
Asbestos in soils (screen and ID)			
ASBESTOS IN SOILS (fibre screening and identification)	Asbestos Fibre Screening and Identification of: Amosite Chrysotile Crocidolite Fibrous Actinolite Fibrous Anthophyllite Fibrous Tremolite	Method 70 using stereo-microscopy, polarised light optical microscopy and dispersion staining	A
ATMOSPHERIC POLLUTANTS: AMBIENT AIR	Analysis		
Filter Papers	Density of Airborne Fibres	Method 72 based upon HSG 248:2005	A
Washings Collected using Frisbee Deposition Gauges	Particulate Matter	Method 74 by Gravimetry Based on Vallack Protocol	A
Filter Samples	Inhalable & Respirable Particulate Matter	Method 75 by Gravimetry Based on MDHS 14/4:2014	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
<u>Bulk ID (cont'd)</u>	Asbestos (cont'd)		
Filter Samples	PM ₁₀ or PM _{2.5} Particulate Matter	Documented In-House Method 76 by Gravimetry Based on BS EN 12341:2014	A
SOILS	Inorganic Chemistry Soils <u>Chemical Tests and Physical Tests</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Land (a component part of which is Soil), Sediment, Sludge	Total solids Loss on ignition	CON 10	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS	Inorganic Chemistry Waters		
	<u>Chemical Tests and Physical Tests</u>		
Land Leachate, Trade Effluent (to sewer), Treated Sewage	Anionic detergents (MBAS)	WAS020	A
Land Leachate, Trade Effluent (to sewer), Treated Sewage	Nonionic detergents	WAS032	A
Land Leachate, Surface water, Trade effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational & Clean Process Water	Ammoniacal nitrogen	WAS036	A
Land Leachate, Surface Water, Trade Effluent (to sewer), Treated Sewage, Recreational & Clean Process Water	Chloride	WAS036	A
Land Leachate, Trade Effluent (to sewer & controlled waters), Treated Sewage, Groundwater, Surface Water & Process Water	Cyanide: Total & Free	WAS018	A
Land Leachate, Trade Effluent (to sewer) Treated Sewage, Groundwater, Surface Water & Process Water	Cyanide: Total excluding iron cyanides	WAS018	A
Land Leachate, Trade Effluent (to sewer) & Treated Sewage	Cyanide complex (by calculation)	WAS018	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Total nitrogen	WAS022	A
Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Kjeldahl (by calculation)	WAS022 (by calculation)	A
Land Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational & Clean Process Water	Nitrate (Oxidised Nitrogen - Nitrite)	WAS036 (by calculation)	A
Land Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage, Recreational & Clean Process Water	Nitrite	WAS036	A
Land Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage, Recreational & Clean Process Water	Orthophosphate	WAS036	A
Ground Water, Land Leachate Prepared Leachate, Trade Effluent (to sewer), Treated Sewage	Phenol, monohydric	WAS019	A
Ground Water, Prepared Leachate, Land Leachate, Surface Water, Trade Effluent (to sewer), Treated Sewage	Thiocyanate	WAS034	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Land Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational & Clean Process Water	Total Oxidised Nitrogen	WAS036	A
Ground Water, Surface Water, Land Leachate, Trade Effluent (to sewer), Treated Sewage	Chromium VI	WAS031	A
Groundwater, Land Leachate, Prepared Leachate, Surface Water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Process & Recreational Water	Sulphate	CON 27 by ion chromatography	A
Groundwater, Land Leachate, Prepared Leachate, Surface Water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Bromide Chloride	CON 27 by ion chromatography	A
Process & Recreational Water	Nitrate Nitrite TON (by Calculation)	CON 27 by ion chromatography	A
Groundwater, Land Leachate, Trade Effluent (to sewer), Treated Sewage	Ammoniacal Nitrogen	WAS055	A
Surface Water, Groundwater, Prepared Leachate, Land Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Biochemical Oxygen Demand	WAS001	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Surface Water, Ground Water, Land Leachate, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Fluoride	WAS029	A
Ground Water, Land Leachate, Treated Sewage, Process & Surface Water	Electrical conductivity	WAS039 by manual and automated techniques	A
Recreational Water	Electrical Conductivity	WAS039 by automated technique	A
Groundwater, Land Leachate, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational, Process & Surface Water	pH	WAS039 by manual and automated techniques	A
Surface Water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational & Clean Process Water	Sulphate	WAS036	A
Ground Water, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Solids: Suspended : Non-volatile (Ash)	WAS006	A
Surface Water, Process Water and Recreational Waters	Suspended Solids	WAS006	A
Ground Water, Land Leachate, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Total organic carbon	WAS005	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Ground Water, Land Leachate, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational, Process & Surface Water	Alkalinity	WAS025 by automated techniques	A
Surface Water, Ground Water, Land Leachate, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	Chemical Oxygen Demand	WAS040	A
Ground Water, Treated Sewage	Oxygen; Dissolved	WAS052	A
Trade Effluent (to sewer and controlled waters), Treated sewage effluent	Free Formaldehyde	WAS030 using spectrophotometer	A
Ground Water, Trade Effluent (to sewer), Treated Sewage	Ammonia	WAS067	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Groundwater, Land Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Surface Water, Process Water & Recreational Water	<u>Metals:</u> total and dissolved Aluminium Barium Beryllium Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Lithium Magnesium Manganese Molybdenum Nickel Phosphorous	WAS049 by ICP-OES	A
Groundwater, Land Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Surface Water, Process Water & Recreational Water	<u>Metals:</u> total and dissolved Potassium Silver Sodium Thallium Tin Titanium Vanadium Zinc	WAS049 ICP-OES	A
Groundwater, Land Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	<u>Metals:</u> total and dissolved Strontium Sulphur Calcium Hardness Magnesium Hardness Total Hardness	WAS049 ICP-OES	A
Surface Water, Trade Effluent (to sewer), Treated Sewage, Recreational Water & Process Water	Colour	WAS065	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Trade Effluent (to sewer and controlled waters), Treated Sewage	Colour Scan	WAS027	A
Ground Water, Surface water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage, Recreational Water & Process Water	Turbidity	WAS066	A
Prepared Leachate, Surface water, Untreated Sewage & Trade Effluent	<u>Total and Dissolved Metals</u> Aluminium Antimony Barium Beryllium Boron Cadmium Chromium Cobalt Copper	WAS060 ICPMS	A
Prepared Leachate, Surface water, Untreated Sewage & Trade Effluent	<u>Total and Dissolved Metals</u> Iron Lead Lithium Manganese Molybdenum Nickel Phosphorus Selenium Strontium Thallium Tin Titanium Vanadium Zinc	WAS060 ICPMS	A



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WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Prepared Leachate, Surface water & Untreated Sewage	<u>Total and Dissolved Metals</u> Arsenic Uranium	WAS060 ICPMS	A
Ground Water, Land Leachate, Treated Sewage	<u>Elements:</u> total and dissolved Aluminium Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Cobalt Copper Iron Lead Lithium Manganese Mercury Molybdenum Nickel Phosphorus Selenium Silicon Strontium Thallium	WAS060 ICPMS	A
Ground Water, Land Leachate, Treated Sewage	<u>Elements:</u> total and dissolved Tin Titanium Uranium Vanadium Zinc	WAS060 ICPMS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Ground Water, Land Leachate, Surface Water Prepared Leachate, Treated/Untreated Sewage Effluent & Trade Effluent	<u>Elements:</u> total and dissolved Tellurium	WAS060 ICPMS	A
Recreational & Process Water	Arsenic Selenium	WAS060 ICPMS	A
Groundwater, Surface Water Landfill Leachate, Soil Leachate, Trade Effluent (to Sewer), Recreational Water, Process Water (Clean & Dirty)	<u>Total & Dissolved Metals:</u> Lithium Beryllium Boron Sodium Magnesium Aluminium Phosphorus Potassium Calcium Titanium Vanadium Chromium Iron Manganese Cobalt Nickel Zinc Arsenic Selenium Strontium Cadmium Barium Lead	WAS076 by ICPMS	A
Groundwater, Surface Water Landfill Leachate, Soil Leachate, Recreational Water, Process Water (clean), Trade Effluent (to Sewer)	<u>Total & Dissolved Metals:</u> Molybdenum Copper	WAS076 by ICPMS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>		
Groundwater, Surface Water Landfill Leachate, Soil Leachate, Trade Effluent (to Sewer)	<u>Total & Dissolved Metals:</u> Tin Antimony Tellurium Thallium Uranium	WAS076 by ICPMS	A
Treated Sewage, Untreated Sewage, Trade Effluent (to Controlled Water)	<u>Total & Dissolved Metals:</u> Lithium Beryllium Boron Sodium Magnesium Potassium Calcium Titanium Vanadium Selenium <u>Strontium</u> Molybdenum Tellurium Barium Thallium Uranium	WAS076 by ICPMS	A
Prepared leachates, Land Leachate, Process Water	Total Mercury	WAS013 using Cold vapour fluorescence	A
Groundwater, Surface Water	Total and Dissolved Mercury	WAS013 using Cold vapour fluorescence	A
Treated Sewage, Untreated Sewage, Trade Effluent (to Sewer), Prepared Leachate, Ground Water, Land Leachate, Recreational Water, Process Water and Surface Water	Total Dissolved Solids @ 180°C	WAS010 by Gravimetry	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
SOILS	Organic Chemistry Soils <u>Chemical Tests and Physical Tests</u>		
Sludge	Volatile Fatty Acids	CON 17	A
WASTE WATERS	Organic Chemistry Waters <u>Chemical Tests and Physical Tests</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Landfill Leachate, Surface water, Trade Effluent (to sewer)	<u>Substituted Urea Herbicides:</u> Chlortoluron Diuron Isoproturon Linuron Methabenzthiazuron Monolinuron Monuron Atrazine Propyzamide Simazine	GEO 37 using online enrichment SPE & HPLC with high resolution/accurate MS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground water, Land Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	<u>Phenoxy Acid Herbicides and Benzonitrile Herbicides:</u> Ioxynil 2,4,5-T Mecoprop Bromoxynil Dicamba Dichlorprop 2,4-DB MCPB 2,4-D 2,3,6-TBA MCPA Benazolin Bentazone Clopyralid Trichlopyr Fenoprop Fluoroxypyr	GEO 20	A
Surface water, Trade Effluent (to sewer), Treated Sewage	<u>Acid Herbicides:</u> 4-Chloro-2-Methylphenol 2,4-Dichlorophenol 2,4,6-Trichlorophenol 4-Chlorophenoxyacetic Acid MCPB (Mecoprop)	GEO73 using SPE and GCMSMS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Surface water, Trade effluent (to sewer), Treated Sewage	Pentachlorophenol	GEO 20	A
Ground water, Land Leachate, Prepared Leachate, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	<u>Organotin Compounds:</u> Di-n-butyltin Tri-n-butyltin Triphenyltin	GEO 24	A
Ground water, Land Leachate, Prepared Leachate, Surface water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	<u>Phenols:</u> phenol 2-chlorophenol o-cresol m/p-cresol 2-nitrophenol 2,4-dimethylphenol 3,5-dimethylphenol 2,4-dichlorophenol 4-chlorophenol 2,6-dichlorophenol 4-chlor-3-methylphenol 2,4,5-trichlorophenol	GEO 18 by GC-MS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, Trade Effluent (to sewer), Treated Sewage	<u>Acid Herbicides (cont'd):</u> MCPA 2,4- DP (Dichlorprop) 2,4-D Bromoxynil 2,4,5-TP (Fenoprop) Pentachlorophenol 2,4,5-T MCPB 4-n-Nonyl Phenol 2,4-DB Ioxynil 4 Tert Octyl Phenol	GEO 73 using SPE and GCMSMS	A
Ground Water, Land Leachate, Surface water, Treated Sewage, Untreated Sewage	Mecoprop	GEO 49 using GCMS	A
Land Leachate, Treated Sewage	SVOCs (Boiling point range: 100 ° - 500 °C)	GEO 40 , Qualitative identification of non-target compounds using GC-MSD (TIC)	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Surface water, Trade Effluent (to sewer)	<u>Pesticides:</u> 1,2,4 trichlorobenzene 1,2,3 trichlorobenzene dichlorvos dichlobenil EPTC mevinphos tecnazene propachlor 2,4 D-methyl trifluralin chlorpropham 2,4, D-ethyl phorate alpha-HCH hexachlorobenzene 2,4 D-isopropyl dimethoate simazine atrazine propazine beta-HCH propetamphos diazinon propyzamide gamma-HCH Triallate	GEO 47 by SPE and GC-MS-MS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests</u> (cont'd)	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Surface water, Trade Effluent (to sewer) (cont'd)	<u>Pesticides:</u> (cont'd) pirimicarb 2,4 D-n-butyl 2,4-D-iso-butyl pirimiphos methyl Terbutryn Fenpropidin Ethofumesate Fenitrothion Malathion PCB52 Cyanazine Chlorpyrifos Fenpropimorph Fenthion parathion ethyl Triademefon Aldrin Pendimethalin chlorfenvinphos isodrin heptachlor epoxide op'-DDE cis-chlordane PCB101 trans-chlordane alpha endosulphan flutriafol pp'-DDE op'-TDE Dieldrin	GEO 47 by SPE and GC-MS-MS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Surface water,	<u>Pesticides (cont'd)</u> : Endrin PCB 118 pp'-TDE op'-DDT pp'-DDT PCB 138 terbuconazole diflufenican PCB180 phosalone coumaphos azinphos methyl azinphos ethyl cis-permethrin trans-permethrin cyfluthrin cypermethrin pentachlorobenzene Trietazine beta endosulphan triazophos PCB 153 Carbophenothion propiconazole PCB 28 parathion methyl alachlor ametryn prometryn heptachlor	GEO 47 by SPE and GC-MS-MS	A



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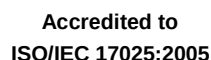
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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Prepared Leachate, Surface Water, Trade Effluent (to sewer), Treated Sewage, Untreated Sewage	<u>SVOC:</u> Acenaphthene Acenaphthylene Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(b)fluoranthene Benzo(ghi)perylene Benzo(k)fluoranthene Bis(2-chloroethoxy)methane Bis(2-chloroisopropyl)ether Bis(2-chloroethyl)ether Bis(2-ethylhexyl)phthalate Butylbenzylphthalate 4-Bromophenyl-phenylether Carbazole Chrysene 2-Chlorophenol 2-Chloronaphthalene 2-methylphenol 4-Chloro-3methylphenol 4-Chlorophenyl-phenylether Dibenz(a,h)anthracene 1, 2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Diethylphthalate Dimethylphthalate Di-n-butylphthalate Di-n-octylphthalate 2,4-Dichlorophenol 2,4-Dimethylphenol	GEO 40 using GC-MSD	A



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Assessment Manager: KW



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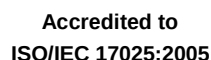
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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Prepared Leachate, Surface Water, Treated Sewage	Total Volatile Petroleum Hydrocarbons (VPH) C5-C10, including aromatic/aliphatic fractionation and quantification according to carbon banding, typically: >C5-C7 >C6-C8 >C8-C10	GEO 45 using GC-FID and GC-MS-FID	A
Drinking Water, Prepared Leachate, Treated Sewage	Total Extractable Petroleum Hydrocarbons (EPH) C10-C44, including aromatic/aliphatic fractionation and quantification according to carbon banding, typically: >C10-C12 >C12-C16 >C16-C21 >C21-C44 >C10-C16 >C16-C24 >C24-C44	GEO 46 using GC-FID	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests</u> (cont'd)	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Prepared Leachate, Surface Water, Treated Sewage, Trade Effluent (to sewer), Untreated Sewage	<u>PAHs:</u> Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)Anthracene Chrysene Benzo(b)Fluoranthene Benzo(a)Pyrene Dibenzo(ah)anthracene Indeno(123-cd)Pyrene Benzo(ghi)Perylene Benzo(k)Fluoranthene	GEO 19	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WASTE WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Ground Water, Land Leachate, Prepared Leachate, Surface Water, Treated Sewage, Trade Effluent (to sewer), Untreated Sewage	MTBE Chloroform 1,1,1 Trichloroethane 1,2 Dichloroethane Carbon Tetrachloride Benzene Trichloroethene Bromodichloromethane Toluene 1,1,2, Trichloroethane Tetrachloroethene Dibromochloromethane Ethylbenzene m&p Xylene o Xylene Styrene Bromoform 1,1,2,2 Tetrachloroethane	GEO 56 using Headspace GC/MS	A
Ground Water, Land Leachate, Prepared Leachate, Surface Water, Treated Sewage, Trade Effluent (to sewer), Untreated Sewage	Volatile fatty acids	CON 17	A
Drinking Water, Prepared Leachate, Treated Sewage	Total Petroleum Hydrocarbons (C6-C40)	GEO 35	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, saline water and groundwater	<u>Hexane Extractable Compounds:</u> BifenoX Cypermethrin Endosulphan (Total) alpha-Endosulphan beta-Endosulphan Endosulphan Sulphate	GEO 79 by liquid - liquid extraction and GCMSMS NCI	A
Surface water, saline water and groundwater	<u>Hexane Extractable Compounds:</u> HBCDD(Total) alpha-HBCDD beta-HBCDD gamma-HBCDD	GEO 80 by liquid - liquid extraction and LCMSMS	A
Surface water, saline water and groundwater	<u>Organic compounds:</u> Atrazine Bentazone DEHP Dichloroprop-p Diuron Isoproturon Cloridazon Mecoprop Metribuzin Pentachlorophenol PFOS	GEO 82 by HRAM LCMS	A



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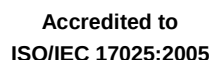
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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests and Physical Tests</u> (cont'd)	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, saline water and groundwater (cont'd)	<u>Organic compounds</u> (cont'd): Simazine PFOA Metamitron Quinoxifen Sulfosulfuron	GEO 82 by HRAM LCMS	A
Surface water, saline water and groundwater	<u>VOCs</u> Dichloromethane trans-1,2-Dichloroethene 1,1-Dichloroethane cis-1,2-Dichloroethene Chloroform 1,1,1-Trichloroethane Carbon Tetrachloride 1,2-Dichloroethane Benzene Trichloroethene 1,2-Dichloropropane Toluene 1,1,2-Trichloroethane Tetrachloroethene Ethylbenzene m,p-Xylene o-Xylene Total xylene Naphthalene	GEO 85 by Headspace GCMS	A

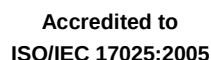


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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests and Physical Tests</u> (cont'd)	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, groundwater trade effluent, treated sewage effluent & landfill leachate	<u>VOCs</u> Chloromethane Vinyl Chloride Bromomethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene Dichloromethane MTBE trans-1,2-Dichloroethene 1,1-Dichloroethane cis-1,2-Dichloroethene 2,2-Dichloropropane Bromochloromethane Chloroform 1,1,1-Trichloroethane 1,1-Dichloropropene Carbon Tetrachloride 1,2-Dichloroethane Benzene Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane cis-1,3-Dichloropropene Toluene trans-1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethene 1,3-Dichloropropane Dibromochloromethane	GEO 76 by Headspace GCMS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests and Physical Tests</u> (cont'd)	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, groundwater trade effluent, treated sewage effluent & landfill Leachate (cont'd)	<u>VOCs</u> (cont'd) 1,2-Dibromoethane Chlorobenzene 1,1,1,2-Tetrachloroethane Ethylbenzene m.p-Xylene o-Xylene Styrene Bromoform Isopropylbenzene 1,1,2,2-Tetrachloroethane 1,2,3-Trichloropropane Bromobenzene n-Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene p-Isopropyltoluene 1,3-Dichlorobenzene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene	GEO 76 by Headspace GCMS	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, saline water and groundwater	<u>Organic Compounds:</u> Aclonifen Alachlor <i>Cyclodiene Pesticides (WFD sum of 4)</i> Aldrin Dieldrin Endrin Isodrin Anthracene Benzo(a)Pyrene Benzo(b)Fluoranthene Benzo(k)Fluoranthene Indeno(1,2,3-cd)-pyrene Benzo(ghi)perylene Cybutryne <i>DDT - Total WFD</i> pp-DDE pp-DDD (TDE) op-DDT pp-DDT Diflufenican Fluoranthene <i>Sum Heptachlor & Heptachlor epoxide (cis & trans)</i> Heptachlor cis-Heptachlor Epoxide trans-Heptachlor Epoxide Hexachlorobenzene Hexachlorobutadiene	GEO 78 by liquid – liquid extraction (GEO77) and GCMSMS EI	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, saline water and groundwater (cont'd)	<u>Organic Compounds: (cont'd)</u> <i>Hexachlorocyclohexane – Total WFD</i> alpha-HCH beta-HCH gamma-HCH delta-HCH epsilon-HCH Quinoxifen Chlorfenvinphos Chlorpyrifos Pentachlorobenzene <i>PBDEs – Total WFD</i> BDE 28 BDE 47 BDE 99 BDE 100 BDE 153 BDE 154 Terbutryn TBT Trifluralin <i>Trichlorobenzene – Total WFD</i> 1,3,5-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,3-Trichlorobenzene	GEO 78 by liquid – liquid extraction (GEO77) and GC MSMS EI	A



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Surface water, saline water and groundwater	<u>Organic compounds</u> Dichlorvos Diclofenac MCPA Pirimicarb Simazine Cybutryne Sulfosulfuron Triclosan	GEO 83 by on-line SPE and LCMSMS	A
Groundwater and Surface Water	Metsulfuron-methyl	GEO 83 by on-line SPE and LC MSMS	A
Surface water, saline water and groundwater	<u>Steroids:</u> Estrone 17-β-Estradiol 17-α-Ethynylestradiol	GEO 75 by SPE & GC MSMS	A
Surface water, saline water and groundwater	4-tert-Octyl Phenol 4-n-Nonylphenol Bisphenol A 4-Nonylphenol (Tech)	GEO 84 by liquid/liquid extraction, derivatisation & GC MSMS NCI	A



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United Kingdom Accreditation Service
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ALS Environmental Ltd
Coventry

Issue No: 124 Issue date: 15 February 2019

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Chemical Tests and Physical Tests (cont'd)</u>	Documented In-House Procedures based on/incorporating published procedures in the HMSO series 'Methods for the Examination of Waters and Associated Materials', (MEWAM) referenced by the ISBN number and additional or alternative references are identified as appropriate	
Landfill and Biogenic gases	<u>Sampling and on-line analysis</u>	Documented In-house procedures	
Sampling from Boreholes	Carbon Dioxide Methane Oxygen	COM 7 using a GA 5000 multi gas analyser	B
WASTE WATERS	Sampling For:		
Ground Water	Chemical Testing	Waterra Powerpack PP1 pump using procedure COM 05	D
Surface Water	Chemical Testing	Spot sampling using procedure COM 06	D
Drinking Water (non-regulatory), Process Water and Recreational water	<i>Legionella</i> testing	Using procedure COM 12	D
Trade Effluent from interceptors	Chemical Testing	Spot sampling using procedure COM 13	D
Sludge (digester feed, Liquid to land and Cake to land)	Microbiology Testing	Using procedure SLU 01	B



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Coventry

Issue No: 124 Issue date: 15 February 2019

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS	Microbiology <u>Microbiological Tests</u>	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Water 2002" unless stated otherwise	
Drinking Water, Ground Water, Process Water, Recreational Water, Surface Water	Total aerobic micro-organisms at 22°C, 37°C & 30°C	W1 based on "The Microbiology of Drinking Water", Part 7 using pour plate	A
Drinking Water, Ground Water, Surface Water	<i>Salmonella</i> spp, detection and confirmation	W2 based on "The Microbiology of Drinking Water", Part 9 using membrane filtration, followed by traditional or protein profiling confirmation (Maldi-ToF)	A
Drinking Water, Ground Water Process Water, Recreational Water, Surface Water	Enterococci, presumptive and confirmed	W7 based on "The Microbiology of Drinking Water", Part 5 using membrane filtration followed by traditional or protein profiling confirmation (Maldi-ToF)	A
Sea Water & Treated Sewage Effluent	Total Coliforms & <i>Escherichia coli</i> , presumptive and confirmed	W57 based on "The Microbiology of Sewage Sludge" Part 3 (2003)	A
Treated Sewage Effluent	Faecal Coliforms, presumptive and confirmed	W57 based on "The Microbiology of Sewage Sludge" Part 3 (2003)	A
Treated Sewage Effluent Surface Water Sea Water	Enterococci, presumptive And confirmed	W58 based on "The Microbiology of Sewage Sludge" Part 3 (2003)	A



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Issue No: 124 Issue date: 15 February 2019

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)		
Drinking Water, Ground Water, Process Water, Surface Water	Sulphite reducing clostridia, including <i>Clostridium perfringens</i> presumptive and confirmed	W8 based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation (Maldi-ToF)	A
Drinking Water, Ground Water, Process Water, Surface Water & Recreational Water	Coliforms presumptive and confirmed	W10 based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation (Maldi-ToF)	A
Drinking Water, Ground Water Process Water, Surface Water & Recreational Water	<i>Escherichia coli</i> presumptive and confirmed	W10 based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation (Maldi-ToF)	A
Drinking Water, Ground Water Process Water, Surface Water	<i>Pseudomonas</i> spp, presumptive and confirmed	W9 by membrane filtration	A
Drinking Water, Ground Water, Process Water (including High Purity & DI Waters used for endoscope rinsing), Recreational Water, Surface Water	<i>Pseudomonas aeruginosa</i> , confirmed	W11 based on "The Microbiology of Drinking Water", Part 8 using membrane filtration, followed by traditional or protein profiling confirmation (Maldi-ToF)	A
Recreational Water	Enumeration of Coliforms and <i>Escherichia coli</i> - presumptive	W26 based on "The Microbiology Recreational and Environmental Waters", using membrane filtration	A



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ALS Environmental Ltd
Coventry

Issue No: 124 Issue date: 15 February 2019

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)		
Soil, Sludge and Sediment	<i>E coli</i> (per g dry weight)	W24 based on "The Microbiology of Sewage Sludge, 2003", Parts 1-4, using membrane filtration	A
Soil and sludge	<i>Salmonella</i> spp (per g dry weight)	W2 based on "The Microbiology of Sewage Sludge", Part 4 with traditional or protein profiling confirmation (Maldi-ToF)	A
Sewage Sludge	<i>E.coli</i>	W25 based on "The Microbiology of Sewage Sludge" Part 3 (2003) using Colilert	A
	Identification and Enumeration:		
Drinking Water, Process Water, Recreational Water	<i>Legionella</i> spp <i>Legionella pneumophila</i> serogroups 1 and 2-15	W5 based on BS 6068-4.12:1998 (ISO 11731:1998) with either traditional or protein profiling confirmation (Maldi- ToF) incorporating serology	A
Process Water	Coliforms presumptive and confirmed	W10 based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation (Maldi- ToF) at the Coventry Site	O



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ALS Environmental Ltd
Coventry

Issue No: 124 Issue date: 15 February 2019

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)		
Process Water	<i>Escherichia coli</i> presumptive and confirmed	W10 based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation (Maldi- ToF) at the Coventry Site	O
Process Water	Enterococci, presumptive and confirmed	W7 based on "The Microbiology of Drinking Water", Part 5 using membrane filtration followed by traditional or protein profiling confirmation (Maldi- ToF) at the Coventry Site	O
Process Water	Sulphite reducing clostridia, including <i>clostridium perfringens</i> presumptive and confirmed	W8 based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation (Maldi- ToF) at the Coventry Site.	O
Process Water	Total aerobic micro-organisms at 22°C, 37°C	W1 based on "The Microbiology of Drinking Water", Part 7 using pour plate	O
Process Water (High Purity & DI Waters used for dialysis & endoscope rinsing)	Total aerobic micro-organisms at 22°C for 7 days	W38 based on HTM 01-06 by pour plate and membrane filtration using R2A agar	A
Process Water (High Purity & DI Waters used for endoscope rinsing)	Total aerobic micro-organisms at 30°C for 5 days	W38 based on HTM 01-06 by membrane filtration using R2A agar	A



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ALS Environmental Ltd
Coventry

Issue No: 124 Issue date: 15 February 2019

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
Process Water	<u>Biological Tests</u> Algae	W44 using microscopic examination	A
Process Water	Zooplankton (including veligers)	W46 using macroscopic examination	A
SECTION 4			
WATERS	Microbiology <u>Microbiological Tests</u> Testing for the purpose of enforcement of the Water Supply (Water Quality) Regulations 2016 (SI 614) & the Public Water Supplies (Scotland) Regulations 2014 (SI 364). The testing is in accordance with the Drinking Water Testing Specification (DWTS)	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Drinking Water" unless stated otherwise W1 based on "The Microbiology of Drinking Water", Part 7 using pour plate W7 based on "The Microbiology of Drinking Water", Part 5 using membrane filtration followed by traditional or protein profiling confirmation (Maldi- ToF) at the Coventry Site	
Drinking Water & Ground Water	Total aerobic micro-organisms at 22°C (3 day) & 37°C (2 day)		C
Drinking Water, Ground Water & Surface Water	Enterococci, presumptive and confirmed		C



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ALS Environmental Ltd
Coventry

Issue No: 124 Issue date: 15 February 2019

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u>		
	Testing for the purpose of enforcement of the Water Supply (Water Quality) Regulations 2016 (SI 614) & the Public Water Supplies (Scotland) Regulations 2014 (SI 364). The testing is in accordance with the Drinking Water Testing Specification (DWTS)	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Drinking Water" unless stated otherwise	
Drinking Water	<i>Clostridium perfringens</i> presumptive and confirmed	W8 based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation (Maldi- ToF) at the Coventry Site.	C
Drinking Water	Total Coliforms presumptive and confirmed	W10 based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation (Maldi- ToF) at the Coventry Site	C
Drinking Water	<i>Escherichia coli</i> presumptive and confirmed	W10 based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation (Maldi- ToF) at the Coventry Site	C



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Coventry

Issue No: 124 Issue date: 15 February 2019

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u>		
	Testing for the purpose of enforcement of the Water Supply (Water Quality) Regulations 2016 (SI 614) & the Public Water Supplies (Scotland) Regulations 2014 (SI 364). The testing is in accordance with the Drinking Water Testing Specification (DWTS)	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Drinking Water" unless stated otherwise	
Drinking Water	<i>Pseudomonas aeruginosa</i> , presumptive and confirmed	W11 based on "The Microbiology of Drinking Water", Part 8 using membrane filtration, followed by traditional or protein profiling confirmation (Maldi- ToF) at the Coventry Site	C
Drinking Water	<i>Pseudomonas</i> spp, presumptive and confirmed	W9 by membrane filtration	C
Drinking Water	Sulphite reducing clostridia presumptive and confirmed	W8 based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation (Maldi- ToF) at the Coventry Site	C



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Coventry

Issue No: 124 Issue date: 15 February 2019

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Water" unless stated otherwise	
Process & Recreational Water	Total aerobic micro-organisms at 22°C (3 day) & 37°C (2 day)	W1 based on "The Microbiology of Drinking Water", Part 7 using pour plate	C
Process Water	Enterococci, presumptive and confirmed	W7 based on "The Microbiology of Drinking Water", Part 5 using membrane filtration followed by traditional or protein profiling confirmation (Maldi- ToF) at the Coventry Site	C
Process Water	<i>Clostridium perfringens</i> presumptive and confirmed	W8 based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation (Maldi- ToF) at the Coventry Site	C
Process & Recreational Water	Total Coliforms presumptive and confirmed	W10 based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation (Maldi- ToF) at the Coventry Site	C



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ALS Environmental Ltd
Coventry

Issue No: 124 Issue date: 15 February 2019

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Water" unless stated otherwise	
Process & Recreational Water	<i>Escherichia coli</i> presumptive and confirmed	W10 based on "The Microbiology of Drinking Water", Part 4 using membrane filtration, followed by defined substrate or protein profiling confirmation (Maldi- ToF) at the Coventry Site	C
Process & Recreational Water	<i>Pseudomonas aeruginosa</i> , presumptive and confirmed	W11 based on "The Microbiology of Drinking Water", Part 8 using membrane filtration, followed by traditional or protein profiling confirmation (Maldi- ToF) at the Coventry Site	C
Process Water	<i>Pseudomonas</i> spp, presumptive and confirmed	W9 by membrane filtration	C
Process Water	Sulphite reducing clostridia presumptive and confirmed	W8 based on "The Microbiology of Drinking Water", Part 6 using membrane filtration, followed by traditional or protein profiling confirmation (Maldi- ToF) at the Coventry Site.	C
Recreational Water	Total aerobic micro-organisms at 37°C (1 day)	W1 based on "The Microbiology of Drinking Water", Part 7 using pour plate (Maldi- ToF) at the Coventry Site	C



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ALS Environmental Ltd
Coventry

Issue No: 124 Issue date: 15 February 2019

Testing performed by the Organisation at the locations specified

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used	Location Code
WATERS (cont'd)	<u>Microbiological Tests</u> (cont'd)	Documented In-House Methods based on procedures in the Standing Committee of Analysts Publication "The Microbiology of Water" unless stated otherwise	
Process Water	Total aerobic micro-organisms at 30°C (2 day)	W1 based on "The Microbiology of Drinking Water", Part 7 using pour plate	C
Drinking Water	<i>Legionella</i> spp <i>Legionella pneumophila</i> Serogroups 1 and 2-15	W5 based on BS 6068-4. 4.12:1998 (ISO 11731:1998) with either Traditional profiling or protein profiling (Maldi-ToF) at the Coventry Site incorporating serology	C
END			



Laboratório de Calibração em
Metrologia Física

Instalações Ceiras

Certificado de Calibração

Data de emissão: 2018.09.11

Certificado N.º : CGAS1084/18

Página 1 de 2

Equipamento:

Caudalímetro

Marca:

Tecora

Modelo:

Echo PM

Intervalo de medição:

0 l/min a 51 l/min

Indicação:

Digital

Nº ident.:

Nº série:

E0649135

Resolução:

0,001 l/min

(do dispositivo afixador)

Cliente:

ALMINA MINAS DO ALENTEJO SA

ALGARES

7600-015 ALJUSTREL

Data de Calibração:

2018.09.11

Condições
Ambientais:

Temperatura: (20,3 ± 0,5) °C

Humidade Relativa: 59,3 %hr

Procedimento:

PO.M-DM/GÁS - 001 Ed.I Rev.01

PO.M-DM/GÁS - 004 Ed.E Rev.01

Rastreabilidade:

Gasómetro 500 dm³ N° ID LG 002, rastreado ao IPQ - Instituto Português da Qualidade.

Cronómetro N° LG 017, rastreado ao ISQ - Instituto de Soldadura e Qualidade.

Estado do
Equipamento:

Não foram identificados aspectos relevantes que afectassem os resultados.

Resultados:

Encontram-se apresentados na(s) folhas em anexo.

"A incerteza expandida apresentada, está expressa pela incerteza-padrão multiplicada pelo factor de expansão k=XX, o qual para uma distribuição normal corresponde a uma probabilidade de, aproximadamente, 95%. A incerteza foi calculada de acordo com o documento EA-4/02."

Calibrado por

Nuno Filipe Dias

Responsável pela Validação

Tânia Farinha (Responsável Técnico)



Laboratório de Calibração em
Metrologia Física

Continuação do Certificado

Certificado N.º : CGAS1084/18

Página 2 de 2

Registo de dados: (Ensaio realizado com ar)

Valor de Equipamento l/min	Valor de Referência l/min	Erro de Medição l/min	Erro Relativo %	Incerteza Expandida l/min	Factor de Expansão k
38,283	38,64	-0,36	-0,92	± 0,34	2,05



Calibrado por

Nuno Dias

Nuno Filipe Dias

Responsável pela Validação

Tânia Farinha

Tânia Farinha (Responsável Técnico)



Laboratório de Calibração em
Metrologia Física

Instalações Ceiras

Certificado de Calibração

Data de emissão: 2019.09.11

Certificado N.º : CGAS1079/19

Página 1 de 2

Equipamento:

Caudalímetro

Marca:

Tecora

Modelo:

Echo PM

Intervalo de medição:

0 l/min a 51 l/min

Indicação:

Digital

Nº ident.:

Nº série:

E0649135

Resolução:

0,001 l/min

(do dispositivo afixador)

Cliente:

ALMINA MINAS DO ALENTEJO SA

ALGARES

7600-015 ALJUSTREL

Data de Calibração:

2019.09.11

Condições
Ambientais:

Temperatura:

(19,7 ± 0,5) °C

Humidade Relativa:

55,4 %hr

Procedimento:

PO.M-DM/GÁS - 001 Ed.I Rev.01

PO.M-DM/GÁS - 004 Ed.F Rev.00

Rastreabilidade:

Gasómetro 500 dm³ N° ID LG 002, rastreado ao IPQ - Instituto Português da Qualidade.

Cronómetro N° LG 048, rastreado ao ISQ - Instituto de Soldadura e Qualidade.

Estado do

Equipamento:

Não foram identificados aspectos relevantes que afectassem os resultados.

Resultados:

Encontram-se apresentados na(s) folhas em anexo.

"A incerteza expandida apresentada, está expressa pela incerteza-padrão multiplicada pelo factor de expansão k=XX, o qual para uma distribuição normal corresponde a uma probabilidade de, aproximadamente, 95%. A incerteza foi calculada de acordo com o documento EA-4/02."

Calibrado por

Nuno Filipe Dias

Responsável pela Validação

Pedro Pereira (Técnico)



Laboratório de Calibração em
Metrologia Física



Continuação do Certificado

Certificado N.º : CGAS1079/19

Página 2 de 2

Registo de dados: (Ensaio realizado com ar)

Valor de Equipamento l/min	Valor de Referência l/min	Erro de Medição l/min	Erro Relativo %	Incerteza Expandida l/min	Factor de Expansão k
38,291	38,34	-0,05	-0,14	± 0,34	2,05



Calibrado por

Nuno Filipe Dias

Responsável pela Validação

Pedro Pereira (Técnico)



Laboratório de Calibração em
Metrologia Física

Instalações Oeiras

Certificado de Calibração

Data de emissão: 2018.10.01

Certificado N.º : CGAS1134/18

Página 1 de 2

Equipamento:	Caudalímetro	Indicação:	Digital
Marca:	Tecora	N.º ident.:	---
Modelo:	Echo PM	N.º série:	E0649137
Intervalo de medição:	0 l/min a 50 l/min	Resolução:	0,001 l/min
		(do dispositivo afixador)	

Cliente: **ALMINA MINAS DO ALENTEJO SA**
ALGARES
7600-015 ALJUSTREL

Data de Calibração: 2018.09.28

Condições Ambientais: Temperatura: (20,3 ± 0,5) °C Humidade Relativa: 54,3 %hr

Procedimento: PO.M-DM/GÁS - 001 Ed.I Rev.01
PO.M-DM/GÁS - 004 Ed.E Rev.01

Rastreabilidade: Padrão de Referência LG092, com certificado 10796687, rastreado à Endress+Hauser.

Estado do Equipamento: Não foram identificados aspectos relevantes que afectassem os resultados.

Resultados: Encontram-se apresentados na(s) folhas em anexo.
"A incerteza expandida apresentada, está expressa pela incerteza-padrão multiplicada pelo factor de expansão k=XX, o qual para uma distribuição normal corresponde a uma probabilidade de, aproximadamente, 95%. A incerteza foi calculada de acordo com o documento EA-4/02."

Calibrado por

Pedro Pereira

Responsável pela Validação

Tânia Farinha (Responsável Técnico)



Laboratório de Calibração em
Metrologia Física

Continuação do Certificado

Certificado N.º : CGAS1134/18

Página 2 de 2

Registo de dados:

Valor de Equipamento l/min	Valor de Referência l/min	Erro de Medição l/min	Erro Relativo %	Incerteza Expandida l/min	Factor de Expansão k
33,699	34,50	-0,80	-2,32	± 0,31	2,05



Calibrado por

Pedro Pereira

Responsável pela Validação

Tânia Farinha (Responsável Técnico)



Laboratório de Calibração em
Metrologia Física

Instalações Oeiras

Certificado de Calibração

Data de emissão: 2019.10.10

Certificado N.º : CGAS1220/19 Rev.01

Página 1 de 2

Equipamento:	Caudal de aspiração	Indicação:	Digital
	Marca: Tecora	Nº ident.:	---
	Modelo: Echo PM	Nº série:	E0649137
	Intervalo de medição: 0 l/min a 50 l/min	Resolução:	0,001 l/min
		(do dispositivo afixador)	

Cliente: **ALMINA MINAS DO ALENTEJO SA**
ALGARES
7600-015 ALJUSTREL

Data de Calibração: 2019.10.10

Condições Ambientais: Temperatura: (20,3 ± 0,5) °C Humidade Relativa: 54,9 %hr

Procedimento: PO.M-DM/GÁS - 001 Ed.I Rev.01
PO.M-DM/GÁS - 004 Ed.F Rev.00

Rastreabilidade: Gasómetro 500 dm³ N.º ID LG 002, rastreado ao IPQ - Instituto Português da Qualidade.
Cronómetro N.º LG 048, rastreado ao ISQ - Instituto de Soldadura e Qualidade.

Estado do Equipamento: Não foram identificados aspectos relevantes que afectassem os resultados.

Resultados: Encontram-se apresentados na(s) folhas em anexo.
"A incerteza expandida apresentada, está expressa pela incerteza-padrão multiplicada pelo factor de expansão k=XX, o qual para uma distribuição normal corresponde a uma probabilidade de, aproximadamente, 95%. A incerteza foi calculada de acordo com o documento EA-4/02."

Calibrado por

Pedro Pereira

Responsável pela Validação

Tânia Farinha (Responsável Técnico)



Laboratório de Calibração em
Metrologia Física



Continuação do Certificado

Certificado N.º : CGAS1220/19 Rev.01

Página 2 de 2

Registo de dados: (Ensaio realizado com ar)

Valor de Equipamento l/min	Valor de Referência l/min	Erro de Medição l/min	Erro Relativo %	Incerteza Expandida l/min	Factor de Expansão k
38,328	38,42	-0,09	-0,24	± 0,35	2,05



Calibrado por

Pedro Pereira

Responsável pela Validação

Tânia Farinha (Responsável Técnico)



Laboratório de Calibração em
Metrologia Física

Instalações Ceiras

Certificado de Calibração

Data de emissão: 2018.10.23

Certificado N.º : CGAS1212/18

Página 1 de 2

Equipamento:

Caudalímetro

Marca:

Tecora

Modelo:

Echo PM

Intervalo de medição:

10 l/min a 50 l/min

Indicação:

Digital

Nº ident.:

Nº série:

E0649138

Resolução:

0,001 l/min

(do dispositivo afixador)

Cliente:

ALMINA MINAS DO ALENTEJO SA

ALGARES

7600-015 ALJUSTREL

Data de Calibração:

2018.10.18

Condições
Ambientais:

Temperatura: (20,2 ± 0,5) °C

Humidade Relativa: 59,3 %hr

Procedimento:

PO.M-DM/GÁS - 001 Ed.I Rev.01

PO.M-DM/GÁS - 004 Ed.E Rev.01

Rastreabilidade:

Gasómetro 500 dm³ N° ID LG 002, rastreado ao IPQ - Instituto Português da Qualidade.

Cronómetro N° LG 017, rastreado ao ISQ - Instituto de Soldadura e Qualidade.

Estado do
Equipamento:

Não foram identificados aspectos relevantes que afectassem os resultados.

Resultados:

Encontram-se apresentados na(s) folhas em anexo.

"A incerteza expandida apresentada, está expressa pela incerteza-padrão multiplicada pelo factor de expansão k=XX, o qual para uma distribuição normal corresponde a uma probabilidade de, aproximadamente, 95%. A incerteza foi calculada de acordo com o documento EA-4/02."

Calibrado por

Nuno Filipe Dias

Responsável pela Validação

Tânia Farinha (Responsável Técnico)



Laboratório de Calibração em
Metrologia Física

Continuação do Certificado

Certificado N.º : CGAS1212/18

Página 2 de 2

Registo de dados: (Ensaio realizado com ar)

Valor de Equipamento l/min	Valor de Referência l/min	Erro de Medição l/min	Erro Relativo %	Incerteza Expandida l/min	Factor de Expansão k
33,558	33,58	-0,02	-0,05	± 0,30	2,05



Calibrado por

Nuno Dias

Nuno Filipe Dias

Responsável pela Validação

Tânia Farinha

Tânia Farinha (Responsável Técnico)



Laboratório de Calibração em
Metrologia Física

Instalações Oeiras

Certificado de Calibração

Data de emissão: 2019.10.24

Certificado N.º : CGAS1316/19

Página 1 de 2

Equipamento:	Caudalímetro	Indicação:	Digital
Marca:	Tecora	N.º ident.:	---
Modelo:	Echo PM	N.º série:	E0649138
Intervalo de medição:	0 l/min a 50 l/min	Resolução:	0,001 l/min
		(do dispositivo afixador)	

Cliente: **ALMINA MINAS DO ALENTEJO SA**
ALGARES
7600-015 ALJUSTREL

Data de Calibração: 2019.10.24

Condições Ambientais: Temperatura: (20,3 ± 0,5) °C Humidade Relativa: 51,3 %hr

Procedimento: PO.M-DM/GÁS - 001 Ed.I Rev.01
PO.M-DM/GÁS - 004 Ed.F Rev.00

Rastreabilidade: Gasómetro 500 dm³ N.º ID LG 002, rastreado ao IPQ - Instituto Português da Qualidade.
Cronómetro N.º LG 048, rastreado ao ISQ - Instituto de Soldadura e Qualidade.

Estado do Equipamento: Não foram identificados aspectos relevantes que afectassem os resultados.

Resultados: Encontram-se apresentados na(s) folhas em anexo.
"A incerteza expandida apresentada, está expressa pela incerteza-padrão multiplicada pelo factor de expansão k=XX, o qual para uma distribuição normal corresponde a uma probabilidade de, aproximadamente, 95%. A incerteza foi calculada de acordo com o documento EA-4/02."

Calibrado por

Pedro Pereira

Responsável pela Validação

Tânia Farinha (Responsável Técnico)



Laboratório de Calibração em
Metrologia Física



Continuação do Certificado

Certificado N.º : CGAS1316/19

Página 2 de 2

Registo de dados: (Ensaio realizado com ar)

Valor de Equipamento l/min	Valor de Referência l/min	Erro de Medição l/min	Erro Relativo %	Incerteza Expandida l/min	Factor de Expansão k
38,421	38,39	0,04	0,09	± 0,34	2,05



Calibrado por

Pedro Pereira

Responsável pela Validação

Tânia Farinha (Responsável Técnico)