


Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

 <p>1252</p> <p>Accredited to ISO/IEC 17025:2005</p>	<h3>SOCOTEC UK Limited</h3> <p>Issue No: 082 Issue date: 06 November 2017</p>	
	<p>Environmental Chemistry PO Box 100 Bretby Business Park Burton-on-Trent Staffordshire DE15 0XD</p>	<p>Contact: Mr Andy Peirce Tel: +44 (0)1283 554542 Fax: +44 (0)1283 554422 E-Mail: andy.peirce@socotec.co.uk website: www.socotec.co.uk</p>
Testing performed at the above address only		

DETAIL OF ACCREDITATION

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
SILICACIOUS MATERIALS	<p><u>Chemical Tests</u></p> <p>Oxides of: Aluminium Calcium Iron Magnesium Manganese Phosphorus Potassium Silicon Sodium Sulphur Titanium</p>	Documented In-House Method based on Analyst: June 1985: Vol 110 by ICP-OES, No ICPASH
Incinerator Bottom Ash	<p>Aluminium Arsenic Barium Cadmium Chromium (Total), Copper Iron Lead Magnesium, Manganese Nickel Potassium Sodium Zinc</p>	Documented In-House Method Method IBAEXT and analysis of the extract by ICP-OES using Method ICPSOIL



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SOILS (cont'd)	<u>Chemical Tests</u> (cont'd)	
SOILS (includes made ground)	Aluminium Arsenic Cadmium Chromium Cobalt Copper Iron Lead Manganese Molybdenum Nickel Vanadium Zinc	Documented In-House Method based on Blue Book Methods for the Examination of Waters and Associated Materials. Determination of Metals in Soils, Sediments and Sewage Sludge and Plants using ICP-OES, No ICP SOIL
SOILS (includes made ground)	Calcium Magnesium Sodium Potassium Strontium Phosphorus	
SOILS (includes made ground)	Antimony Arsenic Cadmium Chromium Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Thallium Uranium Zinc	Documented In-House Method using ICPMS, No ICPMSS
MARINE SEDIMENTS	Arsenic Tin Lead Copper	Documented in house method: ICPSEEXT - Hydrofluoric acid digestion followed by ICPMSS analysis by ICPMS



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MARINE SEDIMENTS (cont'd)	<u>Chemical Tests</u> (cont'd) Aluminium Barium Iron Manganese Strontium Chromium Nickel Vanadium Zinc	Documented in house method: ICPESEXT - Hydrofluoric acid digestion followed by ICPESED analysis by ICP-OES
SOILS and made-ground	Quantification of Phenol and its methylated isomers below: Methylphenols Dimethylphenols Trimethylphenols Total phenols	PHENUVHPLC by methanol/water extraction and HPLC with UV detection
MARINE SEDIMENTS	Vanadium Chromium Manganese Nickel Copper Zinc Arsenic Cadmium Tin Mercury Lead Aluminium Barium Beryllium Iron Manganese Phosphorus Strontium Chromium Copper Vanadium Zinc Nickel	Documented in-house method SEDMEXT & SEDMS by Microwave Assisted Hydrofluoric Acid Digestion and ICPMS Quantification Documented in-house method SEDMEXT & SEDOES by Microwave Assisted Hydrofluoric Acid Digestion and ICPOES Quantification



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MARINE SEDIMENT	<p><u>Chemical Tests</u> (cont'd)</p> <p>PAH's in include: Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Dibenzthiophene Fluoranthene Pyrene Benzo(a)anthracene Chrysene/Triphenylene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(e)pyrene Benzo(a)pyrene Indeno(123-cd)pyrene Dibenzo(ah)anthracene Benzo(ghi)perylene</p> <p>Arsenic Cadmium Chromium Cobalt Copper Lead Manganese Mercury Nickel Zinc</p>	<p>Documented in house method - HCEXTSED by Solvent Extraction and Method PAHSED Determination By GC-MS(SIM)</p> <p>Documented in house method ICPEXT for Aqua Regia extraction and ICPMSS for ICP-MS analysis</p>



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SOILS (includes made ground) (cont'd)	<u>Chemical Tests (cont'd)</u>	
	Fluoride (2:1 extraction)	Documented In-House Method using Ion Selective Electrode based on Methods for the Examination of Waters and Associated Materials, No ISEFSS
	Sulphate (acid soluble)	Documented In-House Method using ICP-OES, No ICPACIDS
	Sulphate (water soluble)	Documented In-House Method using ICP-OES, No ICPWSS
	Sulphur (elemental)	Documented In-House Method based on Lattice Property Holdings Environmental Assessment Guidance Version 2.6. Solvent extraction followed by HPLC and UV detection, No ELESULP
	pH	Documented In-House Method, No PHSOIL
	Total Moisture Content	Documented In-House Method Oven drying @ 105°C, No TMSS
	Total Moisture Content	Documented in house method No. utilising Microwave drying system MICROTMS
	Benzene Toluene Ethylbenzene m&p Xylenes o Xylene Total Xylenes MTBE	Documented In-House Method based on USEPA Methods 3810 and 8015. Technique used is headspace gas chromatography with flame ionisation detection, No BTEXHSA
	Gasoline range organics (GRO) Total GRO >C5-C10 GRO >C5-C6 GRO >C6-C7 GRO >C7-C8 GRO >C8-C10 GRO >C5-C7 GRO >C6-C8	Documented In-House Method based on USEPA Methods 3810 and 8015. Technique used is headspace gas chromatography with flame ionisation detection, No GROHSA



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SOILS (includes made ground) (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Phenol and its Methylated Isomers including: Methyl phenols Dimethyl phenols Trimethyl phenols Total Phenols Naphthol</p> <p>Total Extractable Materials (TEM)</p> <p>Phenols: Phenol 2-Chlorophenol 2-Methylphenol 3 & 4-Methylphenol 2-Nitrophenol 2,4-Dimethylphenol 2,4-Dichlorophenol 4-Chlorophenol 4-Chloro-3-methylphenol 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol 4-Nitrophenol</p> <p>Semi Volatile Organic Compounds: Phenol bis(2-Chloroethyl)ether 2-Chlorophenol 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzyl alcohol 1,2-Dichlorobenzene 2-Methylphenol bis(2-Chloroisopropyl)ether Hexachloroethane 3- & 4-Methylphenol Nitrobenzene 2-Nitrophenol 2,4-Dimethylphenol bis(2-Chloroethoxy)methane 2,4-Dichlorophenol Naphthalene 4-Chlorophenol 4-Chloro-3-methylphenol</p>	<p>Documented In-House Method based on Lattice Property Holdings Environmental Assessment Guidance Version 2.6, (9/4/96), No PHEHPLC</p> <p>Documented in house method No TEM by gravimetry</p> <p>Documented in house method PHEMS using GC-MS</p> <p>Documented in house method SVOCSW using GC-MS</p>



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SOILS (includes made ground) (cont'd)	Semi Volatile Organic Compounds (cont'd): 2-Methylnaphthalene 1-Methylnaphthalene 2,4,6-Trichlorophenol 2,4,5-Trichlorophenol 2-Chloronaphthalene Biphenyl Diphenyl ether Acenaphthylene Dimethylphthalate 2,6-Dinitrotoluene Acenaphthene Dibenzofuran 2,4-Dinitrotoluene Fluorene Diethylphthalate 4-Chlorophenyl-phenylether 4-Bromophenyl-phenylether Hexachlorobenzene Phenanthrene Anthracene Di-n-butylphthalate Fluoranthene Pyrene Butylbenzylphthalate Benzo[a]anthracene Chrysene bis(2-Ethylhexyl)phthalate Di-n-octylphthalate Benzo[b]fluoranthene Benzo[k]fluoranthene Benzo[a]pyrene Indeno[1,2,3-cd]pyrene Dibenzo[a,h]anthracene Benzo[g,h,i]perylene	Documented in house method SVOCSW using GC-MS
SOILS	Total Petroleum Hydrocarbons (C8-C40) including aromatic/ aliphatic fractionation and quantification according to carbon banding: DRO (C10-C24) MRO (C22-C34) KRO (C8-C14) C8-C10, C10-C12, C12-C16, C16-C21 and C21-C35	Documented In-House Method TPHFIDUS



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>PAH's including: Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno (123-cd)pyrene Dibenz(ah)anthracene Benzo(ghi)perylene Total PAH (sum of 16 above)</p> <p>Monohydric Phenols/Phenol index</p> <p>Volatile Organic Compounds: Chloromethane 1,2,4 trichlorobenzene Vinyl Chloride Bromomethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene trans 1,2-Dichloroethene 1,1-Dichloroethane MTBE 2,2-Dichloropropane cis 1,2-Dichloroethene Bromochloromethane Chloroform 1,1,1-Trichloroethane Carbon Tetrachloride 1,1-Dichloropropene Benzene 1,2-Dichloroethane Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane</p>	<p>In house method PAHMSUS using ultrasonic extraction with GCMS detection</p> <p>Documented in house method using Skalar continuous flow No SFAPI</p> <p>Documented in house method VOCHSAS - Volatile Organic Compounds in Soil by Headspace GC-MS</p>



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SOILS (cont'd)	<p><u>Chemical Tests</u> (cont'd)</p> <p>Volatile Organic Compounds: (cont'd)</p> <p>cis 1,3-Dichloropropene Toluene trans 1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethene 1,3-Dichloropropane Dibromochloromethane 1,2-Dibromoethane Chlorobenzene Ethylbenzene 1,1,1,2-Tetrachloroethane m and p-Xylene o-Xylene Styrene Bromoform iso-Propylbenzene Propylbenzene Bromobenzene 1,2,3-Trichloropropane 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, Naphthalene 1,2,3-Trichlorobenzene</p> <p>Arsenic, Mercury and Selenium</p> <p>Acid Soluble Fluoride</p>	<p>Documented in house method VOCHSAS - Volatile Organic Compounds in Soil by Headspace GC-MS</p> <p>ICPEXT & AFSSOIL by Aqua-regia Extraction followed by Atomic Fluorescence Spectrometry</p> <p>Documented In-House Method No ISEFASS using Ion Selective Electrode.</p>



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SOILS	<u>Chemical Tests</u> (cont'd)	
	Available Phosphorus/Phosphate	WSLM60 using Bicarbonate Extraction followed by Colorimetric quantification
	pH	PHADG based on MAFF Reference Book 427
SOILS and MARINE SEDIMENT	Magnesium & Potassium	Documented In-House Method ICPEXCHEXT using Ammonium Nitrate extraction then determination by Inductively Coupled Plasma Optical Emission Spectrometry by ICPEXCH, both based on MAFF Reference Book 427
	Total Organic Carbon	TOEXT & WSLM59 by Sulphurous Acid Digestion followed by High Temperature Combustion followed by NDIR
SOILS (MCERTS) Sand, clay, and silty type soils and made-ground		Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil
	Sulphur (elemental)	Documented In-House Method Solvent extraction followed by HPLC and UV detection, No ELESULP
	Sulphate (Total/acid soluble)	Documented In-House Method using ICP-OES, No ICPACIDS
	Sulphate (water soluble)	Documented In-House Method using ICP-OES, No ICPWSS
	Iron Aluminium Beryllium Barium	Documented In-House Method - ICPSOIL using aqua regia extraction and ICP-OES determination



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
	PAH's including: Napthalene Acenaphthene Fluorene Phenanthrene Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Dibenz(ah)anthracene Indeno(123cd)pyrene Benzo(ghi)perylene	In house method PAHMSUS using ultrasonic extraction with GCMS detection
SOILS (MCERTS) Sand, clay, and silty type soils and made-ground (cont'd)	<u>Chemical Tests (cont'd)</u> Phenol Quantification of specific PCB Congeners below: PCB 28 PCB 52 PCB 77 PCB 81 PCB 101 PCB 105 + 141 PCB 114 PCB 118 PCB 123 PCB 126 PCB 138 PCB 153 PCB 156 PCB 157 PCB 167 PCB 169 PCB 180 PCB 189 Volatile Organic Compounds: Vinyl Chloride	Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil (cont'd) PHENUVHPLC by methanol/water extraction and HPLC with UV detection HCEXTS 1.003 and PCBEC D 1.002 by solvent extraction and GC-ECD Documented in house method VOCHSAS - Volatile Organic



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
	Bromomethane Chloroethane Trichlorofluoromethane trans 1,2-Dichloroethene 1,1-Dichloroethane MTBE 2,2-Dichloropropane cis 1,2-Dichloroethene Bromochloromethane Chloroform 1,1,1-Trichloroethane Carbon Tetrachloride 1,1-Dichloropropene Benzene 1,2-Dichloroethane	Compounds in Soil by Headspace GC-MS
SOILS (MCERTS) Sand, clay, and silty type soils and made-ground (cont'd)	<u>Chemical Tests (cont'd)</u> Volatile Organic Compounds: (cont'd) Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane cis 1,3-Dichloropropene Toluene trans 1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethene 1,3-Dichloropropane Dibromochloromethane 1,2-Dibromoethane Chlorobenzene Ethylbenzene 1,1,1,2-Tetrachloroethane m and p-Xylene o-Xylene Styrene Bromoform iso-Propylbenzene Propylbenzene Bromobenzene 1,2,3-Trichloropropane 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene	Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil (cont'd) Documented in house method VCHSAS - Volatile Organic Compound in Soil by Headspace GC-MS



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
	1,2,4-Trimethylbenzene sec-Butylbenzene p-Isopropyltoluene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane Naphthalene 1,2,3-Trichlorobenzene	
SOILS (MCERTS) Sand, clay, and silty type soils and made-ground (cont'd)	<u>Chemical Tests (cont'd)</u> Benzene Toluene Ethyl Benzene m&p Xylenes o Xylene Total Xylenes Gasoline range organics: Total GRO >C5-C10 GRO >C5-C6 GRO >C6-C7 GRO >C7-C8 GRO >C8-C10 GRO >C5-C7 GRO >C6-C8	Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil (cont'd) Documented In-House Method Technique used is headspace gas chromatography with flame ionisation detection, No BTEXHSA Documented In-House Method Technique used is headspace gas chromatography with flame ionisation detection, No GROHSA



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Surface and Groundwaters, Trade effluents, Landfill Leachate Laboratory Generated Leachate	Free Cyanide Total Cyanide Phenol Index Thiocyanate Free Sulphide as S	Documented In-House Method using segmented flow analysis SFAPI
Surface and Groundwaters, Trade effluents, Laboratory Generated Leachate	Determination of dissolved and total metals: Aluminium Arsenic Barium Boron Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Molybdenum Nickel Potassium Sodium Strontium Sulphur Vanadium Zinc	Documented In-House Method using ICP-OES, No ICPWATVAR
WATERS	<u>Chemical Tests</u> Antimony Arsenic Cadmium Chromium Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Thallium Tin	Documented In-House Method based on Blue Book Methods for the Examination of Waters and Associated Materials Documented In-House Method using ICPMS, No ICPMSW



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Surface and Groundwaters, Trade effluents, Laboratory Generated Leachate	Uranium Vanadium Zinc	Documented In-House Method - using ICPMS, No ICPMSW
Surface Water, Groundwater, Trade Effluent and Treated Sewage Effluent	Total and Dissolved Silver	Documented In-House Method using ICP-MS, No ICPMSAG
Landfill Leachates only	Aluminium Calcium Iron Magnesium Potassium Sodium Sulphate	Documented In-House Method using ICP-OES, No ICPWATVAR
Landfill leachates only	Arsenic Cadmium Chromium Copper Lead Mercury Nickel Selenium Zinc	Documented In-House Method using ICPMS, No ICPMSW
WATERS	<u>Chemical Tests</u>	Documented In-House Method based on Blue Book Methods for the Examination of Waters and Associated Materials
Surface and Ground waters, Trade Effluents and Laboratory Generated Leachates	Fluoride	Documented In-House Method by Multiple Known Addition using an Automated Ion Selective Electrode based on the Standard Methods for the Examination of Water and Wastewater, No ISEF
Surface and Ground waters, Trade Effluents and Laboratory Generated Leachates	Fluoride Bromide Iodide	Documented In-House Method ICHALW - using Ion Chromatography



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Surface and Groundwaters, Trade effluents Laboratory Generated Leachate Landfill Leachate	Gasoline range organics (GRO)	Documented In-House Method based on USEPA Methods 3810 and 8015 by headspace gas chromatography with flame ionisation detection, No GROHSA
Surface and Groundwaters, Trade effluents Laboratory Generated Leachate Landfill Leachate (cont'd)	pH	Documented In-House Method using pH probe based on BS 2690:1984:Part 109, No WSLM3
Surface and Groundwaters, Trade effluents Laboratory Generated Leachate Landfill Leachate (cont'd)	Conductivity	Documented In-House Method using conductivity probe based on BS 2690:1984:Part 109, No WSLM2
Surface and Ground waters, trade effluents and landfill leachates	Chemical Oxygen Demand	Documented In-House colorimetric chromium oxidation method based on BS 6068:2.34:1988, No WSLM11
Surface and Groundwaters, Trade effluents Laboratory Generated Leachate Landfill leachate	BOD	Documented in house method by luminescence DO probe No WSLM20
Surface and Groundwaters, Trade effluents Laboratory Generated Leachate Landfill leachate	Total Alkalinity Hydroxide Alkalinity Carbonate Alkalinity Bicarbonate Alkalinity	Documented In-House titrimetric method based on BS 2690:1984:Part 109, No WSLM12
	Total Organic Carbon	Documented In-House Method using TOC instrumental technique, No WSLM13
WATERS	<u>Chemical Tests</u>	Documented In-House Method based on Blue Book Methods for the Examination of Waters and Associated Materials
Surface and groundwater, Trade effluents	Suspended Solids	Documented In-House gravimetric method based on BS 690:1981:Part 120, No WSLM10
	Total Acidity	Documented In-House Method based on BS 2690:1984:Part 109, No WSLM17



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Surface and Groundwaters, Trade effluents Laboratory Generated Leachate Landfill leachate	Determination of: Ammonia Total Oxidised nitrogen Nitrite Nitrate Chloride Phosphate Thiocyanate Hexavalent Chromium	Documented In-House Method by automated discrete colorimetric analysis, No KONENS
Surface and Groundwaters, Trade effluents	Total Iron Ferrous Iron	Documented In-House Method by automated discrete colorimetric analysis, No KONEFE
Surface and Groundwaters, Trade effluents	Phenol and its Methylated Isomers including: Methyl phenols Dimethyl phenols Trimethyl phenols	Documented In-House Methods based on Lattice Property Holdings Environmental Assessment Guidance Version 2.6, (9/4/96), No PHEHPLC
Surface and Ground waters, Trade effluents, Landfill Leachates & Laboratory Generated Leachate	Quantification of Phenol and its methylated isomers below: Methylphenols Dimethylphenols Trimethylphenols Total phenols	PHENUVHPLC by methanol/water extraction and HPLC with UV detection
Surface and Groundwaters, Trade effluents(cont'd)	Benzene Toluene Ethylbenzene Xylenes (o-, m/p-) MTBE	Documented In-House Method based on USEPA Methods 3810 and 8015. Technique used is headspace gas chromatography with flame ionisation detection, No BTEXHSA
WATERS (cont'd) Ground Waters, Surface Waters and Trade effluents	<u>Chemical Tests</u> (cont'd) Quantitative and semi-quantitative determination of Volatile Organic Compounds (VOC's) including: Chloromethane Vinyl Chloride Chloroethane Trichlorofluoromethane 1,1-Dichloroethene Dichloromethane trans 1,2-Dichloroethene 1,1-Dichloroethane	Documented in-house Method using Headspace Extraction, Gas Chromatography with Mass Spectrometry Detection No VOCHSAW



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Ground Waters, Surface Waters and Trade effluents (cont'd)	cis 1,2-Dichloroethene Bromochloromethane Quantitative and semi-quantitative determination of Volatile Organic Compounds (VOC's) (cont'd) including: Chloroform 1,1,1-Trichloroethane Carbon Tetrachloride 1,1-Dichloropropene 1,2-Dichloroethane Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane trans 1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethene Dibromochloromethane 1,2-Dibromoethane Chlorobenzene 1,1,1,2-Tetrachloroethane Styrene Bromoform iso-Propylbenzene Propylbenzene Bromobenzene 1,2,3-Trichloropropane 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene tert-Butylbenzene 1,2,4-Trimethylbenzene sec-Butylbenzene	Documented in-house Method using Headspace Extraction, Gas Chromatography with Mass Spectrometry Detection No VOCHSAW
WATERS (cont'd) Ground Waters, Surface Waters and Trade effluents (cont'd)	Chemical Tests (cont'd) Quantitative and semi-quantitative determination of Volatile Organic Compounds (VOC's) (cont'd) including: p-Isopropyltoluene 1,3-Dichlorobenzene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane 1,2,4-Trichlorobenzene	Documented in-house Method using Headspace Extraction, Gas Chromatography with Mass Spectrometry Detection No VOCHSAW



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SOCOTEC UK Limited

Issue No: 082 Issue date: 06 November 2017

Testing performed at main address only

Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Surface waters groundwaters, Trade effluents, laboratory produced leachate and landfill leachates	Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene p-Isopropyltoluene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene Benzene Toluene Ethylbenzene Xylenes (o-, m/p-) PAH's including: Naphthalene Acenaphthylene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(k)fluoranthene Benzo(a)pyrene Indeno (123-cd)pyrene Dibenzo[a,h]anthracene Benzo[g,h,i]pyrene Coronene Total PAH's (sum of 17 above)	Documented In-House Method using solvent extraction [Method PAHMSWEXT] and GC-MS detection [Method PAHMSW]
WATERS (cont'd)	<u>Chemical Tests</u> (cont'd)	Documented in house methods



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Surface and Groundwaters, Trade effluents Laboratory Generated Leachate Landfill Leachate	Total Petroleum Hydrocarbons C8 - C40 Speciated EPH: Aliphatic (Mineral Oil) fraction Aromatic (PAH) fraction Banded EPH: C8 - C10, C10-C12, C12-C16, C16-C21, C21-C35, C35-C40 C10-C24 (Diesel Range) C8 -C14 (Kerosene Range) C22-C34 (Mineral Oil Range) C10-C20, C20-C30, C30-C40	Documented In-House Method: HCETW - Pentane extraction followed by: Documented In-House Method: TPHFID - using GCFID for the aliphatic fractions and GCMS for the Aromatic fractions
Surface and Groundwater, Trade Effluents and Landfill Leachates	Acid Herbicides, including: 2,4-D Methyl Ester 2,3,6-TBA 2,4,5-T 2,4,5-TP/Silvex/Fenoprop 2,4-D 2,4-DB Benazolin Bentazone Clopyralid Dicamba Dichloroprop MCPA MCPB Mecoprop	AHBEXTW – SPE extraction and derivatisation followed by: : AHB – Analysis by GCMS

WATERS (cont'd)

Chemical Tests (cont'd)

Documented in house methods



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Materials/Products tested	Type of test/Properties measured/Range of measurement	Standard specifications/ Equipment/Techniques used
Ground and surface waters, trade effluent, treated sewage effluent and laboratory leachates [1:2 and 1:10]	Determination of the following pesticides and herbicides: Azinphos Methyl Azinphos Ethyl Carbophenothion Chlorfenvinphos Dichlorvos Dimethoate Fenitrothion Malathion Mevinphos Parathion-Methyl Parathion-Ethyl Phorate Phosalone Pirimiphos-Methyl Propetamphos Triazophos Cyfluthrin Dieldrin o,p-DDT Alpha Endosulphan Beta Endosulphan Endrin HCH-Gamma [lindane] Atrazine Diazinon	PESTSPE - SPE extraction and GC3QW - GC-MS/MS analysis
Ground water and treated sewage effluent	Determination of the following pesticide: p,p'-DDT	PESTSPE - SPE extraction and GC3QW - GC-MS/MS analysis
END		