

Schedule of Accreditation

issued by

United Kingdom Accreditation Service

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

| | | |
|---|---|--|
|  <p>Accredited to ISO/IEC 17025:2017</p> | Element Materials Technology Environmental UK Ltd | |
| | Issue No: 087 Issue date: 07 November 2022 | |
| | Unit 3 and Unit 6 Deeside Point Zone 3 Deeside Industrial Park Deeside CH5 2UA | Contact: Alan Wilson Tel: +44 (0)1244 833780 Fax: +44 (0)1244 833781 E-Mail: Alan.g.wilson@element.com Website: www.element.com |
| 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 |
|--|--|--|
| <p>ASBESTOS IN BULK MATERIALS including materials and products suspected of containing asbestos</p> | <p><u>Health and Hygiene</u></p> <p>Identification of: Amosite Chrysotile Crocidolite Fibrous Actinolite Fibrous Anthophyllite Fibrous Tremolite</p> | <p>Health and Safety Executive - Asbestos: The Analysts' Guide (HSG 248) – 2021</p> <p>Documented In-House Method TM065 using stereo-microscopy, polarised light optical microscopy and dispersion staining based on HSG 248</p> |
| <p>ASBESTOS IN SOILS – The Identification of Asbestos fibres in bulk samples of Soil, <i>specifically: Soil</i></p> | <p>Identification of: Amosite Chrysotile Crocidolite Fibrous Actinolite Fibrous Anthophyllite Fibrous Tremolite</p> | <p>Documented In-House Method PM042S and TM065 using stereo-microscopy, polarised light optical microscopy and dispersion staining based on HSG 248</p> |
| <p>ASBESTOS IN SOILS – The Identification and Quantification of Asbestos fibres in bulk samples of Soil, <i>specifically: Soil</i></p> | <p>Identification and Quantification of Asbestos content of: Amosite Chrysotile Crocidolite Fibrous Actinolyte Fibrous Anthophyllite Fibrous Tremolite</p> | <p>Documented In-House Method PM042S and TM131S065 for identification using stereo-microscopy, polarised light optical microscopy and dispersion staining based on HSG 248. Documented In-House Method PM042S and TM131S for quantification of asbestos.</p> |



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| PETROLEUM and PETROLEUM PRODUCTS | <p><u>Chemical Tests</u></p> <p>C5-C35 fingerprint (qualitative) and banding</p> <p>>C5-6 >C6-8 >C8-10 >C10-12 >C12-16 >C16-21 >C21-35 >C35</p> <p>Aliphatic/aromatic fractionation and subsequent banding:</p> <p>Aliphatic bands: >C6-C8 >C8-C10 >C10-C12 >C12-C16 >C16-C21 >C21-C35 >C35+</p> <p>Aromatic bands (equivalent carbon EC): >C6-C8 >C8-C10 >C10-C12 >C12-C16 >C16-C21 >C21-C35 >C35+</p> | <p>In-house method TM001P using GC-FID</p> |



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| AIR Ambient Air/Soil Vapour | Volatile Organic Compounds: 1,1,1-Trichloroethane 1,1,2,2-Tetrachloroethane 1,1,2-Trichloroethane 1,1-Dichloroethane 1,1-Dichloroethene 1,2,4-Trimethylbenzene 1,2-Dibromoethane 1,2-Dichlorobenzene 1,2-Dichloroethane 1,2-Dichloropropane 1,3,5-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene Benzene Bromomethane Carbon Tetrachloride Chlorobenzene Chloroethane Chloroform cis-1,2-Dichloroethene cis-1,3-Dichloropropene Ethylbenzene m&p - Xylenes Methylene Chloride o-Xylene Styrene Tetrachloroethene Toluene trans-1,3-Dichloropropene Trichloroethene Trichlorofluoromethane Trichlorotrifluoroethane Vinyl Chloride | In-house test method TM068G using preparation method PM 034, using Summa (Silco-can) canisters, Tedlar Bags, Bottle Vac and GC-MS based on USEPA TO15. |



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| SOILS | <p><u>Chemical Tests</u></p> <p>Elements:</p> <p>Arsenic Barium Cadmium Chromium Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Zinc</p> <p>Water soluble boron</p> <p>Water Soluble Anions: Chloride Total Oxidised Nitrogen (TON) Sulphate</p> <p>Cyanide - Total</p> | <p>In-house method TM030S using PM 015S and PM 077S by ICP-OES</p> <p>In-house method TM074 using PM 032 and PM 077S by ICP-OES</p> <p>In-house method TM038 using PM 020S by discrete analyser</p> <p>In-house method TM089W/S using PM 045S by segmented flow analysis</p> |



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| SOILS (cont'd) | <p><u>Chemical Tests (cont'd)</u></p> <p>Extractable petroleum hydrocarbons (EPH) in the range: >C8-C40, including banding: >C8-C10 >C10-C12 >C12-C16 >C16-C21 >C21-C35</p> <p>>C8-C10 >C10-C20 >C20-C30 >C30-C40</p> <p>>C7-C9 >C10-14 >C15-36</p> <p>Loss on ignition at 450 °C</p> <p>pH</p> <p>Total Sulphate</p> <p>BTEX Compounds benzene toluene ethylbenzene o-xylene m/p-xylene</p> <p>Polychlorinated Biphenyls (PCBs): PCB 28/31 PCB 52 PCB 101 PCB 118 PCB 138 PCB 153 PCB 180 PCB 81 PCB 87</p> | <p>In house methods PM008S (end over end shake) fractionation by RapidTrace workstation PM016 followed by TM005S using GC-FID</p> <p>In-house method TM022S using PM 004S</p> <p>In house method TM073 using PM 011S using Metrohm robotic sample processor</p> <p>In-house method PM029S and PM 077 followed by TM050S using ICP-OES</p> <p>In House method TM152 including Methanol preservation (PM104) followed by Headspace GCMS</p> <p>In-house method TM017S using end over end shaker (PM 008) and GC-MS</p> |



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| SOILS (cont'd) | <p><u>Chemical Tests (cont'd)</u> Polychlorinated Biphenyls (PCBs) (cont'd): PCB 123 PCB 114 PCB 105 PCB 126 PCB 167 PCB 156/157 PCB 169 PCB 189 Total PCBs (sum of above)</p> <p>Polycyclic Aromatic Hydrocarbons (PAHs): Naphthalene Acenaphthene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benz(a)anthracene Chrysene Benzo(b/j/k)fluoranthene Benzo(a)pyrene Indeno(123,cd)pyrene Dibenzo(ah)anthracene Benzo(ghi)perylene</p> <p>Phenols: Phenol m/p-Cresol o-Cresol Xylenols 2,3,5-Trimethylphenol 2-Isopropylphenol</p> <p>Solvent Extractable Matter</p> <p>Total Organic Carbon Total Carbon</p> | <p>In-house method TM017S using end over end shaker (PM 008) and GC-MS</p> <p>In-house method TM004S using end over end shake (PM008S) and GC-MS</p> <p>In-house method TM026 using solvent extraction (PM021S) and HPLC</p> <p>In-house method TM007S using PM 006S</p> <p>In-house method TM021S using PM 024S</p> |



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| SOILS (cont'd) | <u>Chemical Tests (cont'd)</u> Volatile Organic Compounds Chloromethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene Dichloromethane Trans-1,2-Dichloroethene 1,1-Dichloroethane Cis-1,2-Dichloroethene Bromochloromethane Chloroform 1,1,1-Trichloroethane 1,1-Dichloropropene Carbontetrachloride 1,2-Dichloroethane Benzene Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane Toluene 1,1,2-Trichloroethane Tetrachloroethene 1,3-Dichloropropane Dibromochloromethane 1,2-Dibromoethane Chlorobenzene 1,1,1,2-Tetrachloroethane Ethylbenzene m/p Xylene o Xylene Isopropylbenzene 1,1,2,2 Tetrachloroethane 1,2,3-Trichloropropane Propylbenzene 1,3,5-Trimethylbenzene Tert-Butylbenzene 1,2,4-Trimethylbenzene Sec-Butylbenzene 4-Isopropyltoluene 1,4-Dichlorobenzene 1,3-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene 1,2-Dichlorobenzene 1,2-Dibromo-3-chloropropane | In-house method TM015S using PM 010S by headspace GC-MS |



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| SOILS (cont'd) | <u>Chemical Tests (cont'd)</u> MTBE Carbon Disulphide Hexavalent Chromium Semivolatile Organic Compounds: Phenol 2-Chlorophenol N-Nitrodi-n-propylamine Nitrobenzene Isophorone 2,4-Dichlorophenol 1,2,4-Trichlorobenzene Hexachlorobutadiene 2-Methylnaphthalene 2-Chloronaphthalene Dimethylphthalate Dibenzofuran 4-Bromophenyl phenyl ether Phenanthrene Fluoranthene Pyrene | In House method TM038 using PM 020S using Aquachem Photometric Analyser In house method TM016S using PM 008 using GCMS analysis |
| Leachate preparation (10:1) | Metals: Aluminium Ammonium Antimony Arsenic Barium Beryllium Boron Cadmium Calcium Chloride Chromium Cobalt Copper | PM017S 10:1 leachate preparation based on BS EN 12457 |



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| SOILS (cont'd) Leachate preparation (10:1) (cont'd) | <u>Chemical Tests (cont'd)</u> Metals (cont'd): Iron Lead Magnesium Manganese Mercury Molybdenum Nickel Nitrite Phosphate Phosphorus Potassium Selenium Sodium Sulphate Vanadium Zinc | PM017S 10:1 leachate preparation based on BS EN 12457 |
| WATERS Potable water (tap, non regulatory), Surface water and groundwater | <u>Chemical Tests</u> Volatile Organic Compounds (VOCs): Chloromethane Chloroethane Trichlorofluoromethane 1,1-Dichloroethene Carbon Disulphide Dichloromethane Trans-1,2-Dichloroethene 1,1 - Dichloroethane Cis-1,2-Dichloroethene Bromochloromethane Chloroform 1,1,1-Trichloroethane 1,1-Dichloropropene Carbontetrachloride 1,2-Dichloroethane Benzene Trichloroethene 1,2-Dichloropropane Dibromomethane Bromodichloromethane Toluene 1,1,2-Trichloroethane | In-house method PM010 and TM015W by headspace GC-MS |



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| <p>WATERS (cont'd)</p> <p>Potable water (tap non regulatory), Surface water and groundwater (cont'd)</p> | <p><u>Chemical Tests (cont'd)</u></p> <p>Volatile Organic Compounds (VOCs): (cont'd)</p> <p>Tetrachloroethene 1,3,-Dichloropropane Dibromochloromethane 1,2-Dibromoethane Chlorobenzene 1,1,1,2-Tetrachloroethane Ethylbenzene m/p Xylene o Xylene Bromoform Isopropylbenzene Bromobenzene 1,2,3-Trichloropropane Propylbenzene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene Tert-Butylbenzene 1,2,4-Trimethylbenzene Sec-Butylbenzene 4-Isopropyltoluene 1,3- Dichlorobenzene 1,4-Dichlorobenzene n-Butylbenzene 1,2-Dichlorobenzene MTBE Vinyl Chloride</p> | <p>In-house method PM010 and TM015W by headspace GC-MS</p> |
| <p>Potable water (tap non regulatory), Surface water and groundwater</p> | <p>Volatile Organic Compounds (VOCs):</p> <p>MTBE Chloromethane Vinyl Chloride Bromomethane Chloroethane Trichlorofluoromethane Diethyl Ether 1,1-Dichloroethene Carbon Disulphide Acrylonitrile Trans-1,2-Dichloroethene 1,1 - Dichloroethane Cis-1,2-Dichloroethene</p> | <p>In-house method TM 128 using PM 115W by Purge and Trap GC-MS</p> |



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| <p>WATERS (cont'd)</p> <p>Potable water (tap non regulatory), Surface water and groundwater (cont'd)</p> | <p><u>Chemical Tests (cont'd)</u></p> <p>Volatile Organic Compounds (VOCs) (cont'd):</p> <p>Propionitrile Methyl Acrylate Bromochloromethane Methacrylonitrile 1,1,1-Trichloroethane 1-Chlorobutane 1,1-Dichloropropene Carbontetrachloride 1,2-Dichloroethane Benzene Trichloroethene 1,2-Dichloropropane Dibromomethane Toluene Cis-1,3-Dichloropropene Methyl Methacrylate Trans-1,3-Dichloropropene 1,1,2-Trichloroethane Tetrachloroethene 1,3-Dichloropropane 1,2-Dibromoethane Chlorobenzene 1,1,1,2-Tetrachloroethane Ethylbenzene m/p Xylene o Xylene Bromoform Isopropylbenzene 1,1,2,2 Tetrachloroethane Bromobenzene 1,2,3-Trichloropropane Trans-1,4-dichloro-2-butene 2-Chlorotoluene 1,3,5-Trimethylbenzene 4-Chlorotoluene Tert-butylbenzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 1,2,4-Trichlorobenzene Hexachlorobutadiene Naphthalene 1,2,3-Trichlorobenzene</p> | <p>In-house method TM 128 using PM 115W by Purge and Trap GC-MS</p> |



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| WATERS (cont'd) | <u>Chemical Tests (cont'd)</u> | |
| Surface Water and groundwater | Phenols Cresols Xylenols | In-house method TM026 using PM 067W, using HPLC |
| Surface Water and groundwater | Hexavalent Chromium | In house method TM038 using PM 031W, by an Automated photometric Analyser |
| Surface Water and groundwater | Dissolved Gases: Ethane Ethene Methane | In house method TM025 using GC-TCD-FID |
| Potable water (non-regulatory), surface water and groundwater | Extractable petroleum hydrocarbons (EPH) including banding: >C10-C12 >C12-C16 >C16-C21 >C21-C35 >C35-C40 Total EPH >C10-C40 | In-house method TM005 by GC-FID using stir bar extraction (PM030W) and fractionation by RapidTrace workstation PM016 |
| Potable water (non-regulatory), surface water and groundwater | And including aliphatic/aromatic fractionation and subsequent banding Aliphatic: >C10-C12 >C12-C16 >C16-C21 >C21-C35 >C35-C40 Total Aliphatic (>C10-C40) Aromatic (equivalent carbon EC): >C10-C12 >C12-C16 >C16-C21 >C21-C35 >C35-C40 Total Aromatic (>C10-C40) | |



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| <p>WATERS (cont'd)</p> <p>Potable water (non-regulatory), surface water and groundwater</p> | <p><u>Chemical Tests (cont'd)</u></p> <p>Semi-Volatile Organic Compounds (SVOCs):</p> <p>1,2,4-Trichlorobenzene 1,2-Dichlorobenzene 1,3-Dichlorobenzene 1,4-Dichlorobenzene 2,4,5-Trichlorophenol 2,4-Dichlorophenol 2,4-Dinitrotoluene 2-Chloronaphthalene 2-Chlorophenol 2-Methylnaphthalene 2-Methylphenol</p> <p>4-Bromophenyl phenyl ether 4-Chloro-3-methylphenol 4-Chlorophenyl phenyl ether</p> <p>Acenaphthene Acenaphthylene Anthracene Azobenzene Benz[a]anthracene Benzo[b/k]fluoranthene Benzo[ghi]perylene Bis(2-Chloroethyl)ether Bis(2-chloroethoxy)methane Carbazole Chrysene Dibenz[a,h]anthracene Dibenzofuran Diethyl phthalate Di-n-Butyl phthalate Fluoranthene Fluorene Hexachlorobenzene Hexachlorobutadiene Hexachloroethane Isophorone Napthalene Nitrobenzene N-Nitrodi-n-propylamine Phenanthrene Pyrene</p> | <p>In-house method TM016 using stir bar extraction (PM030W) followed by GC-MS analysis</p> |



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| <p>WATERS (cont'd)</p> <p>Drinking water (non regulatory tap water), Groundwater, Surface Water (river water), Prepared leachate, Trade effluent</p> <p>(phosphorus -excluding tap water and trade effluent)</p> | <p><u>Chemical Tests (cont'd)</u></p> <p>Metals:</p> <p>Aluminium Antimony Arsenic Barium Beryllium Boron Cadmium Chromium Cobalt Copper Iron Lead Manganese Mercury Molybdenum Nickel Phosphorous Selenium Tin Vanadium Zinc</p> | <p>In house method TM170W using PM 014W by ICP-MS</p> |
| <p>Surface water, groundwater and leachate from landfill</p> | <p>Extractable petroleum hydrocarbons (EPH) in the range: C8-C40</p> <p>Alkalinity</p> | <p>In-house method TM005 by GC-FID using stir bar extraction (PM030W)</p> <p>In house method TM075 using PM 031W using robotic sample processor</p> |
| <p>Surface water, groundwater and leachate from landfill (cont'd)</p> | <p>pH</p> <p>Electrical Conductivity at 25 °C</p> | <p>In house method TM073 using PM 031W using robotic sample processor</p> <p>In house method TM076 using PM 031W using robotic sample processor</p> |



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| <p>WATERS (cont'd)</p> <p>Surface water, groundwater, Tap water (non-regulatory) and prepared leachate</p> <p>Surface water, groundwater and leachate from landfill</p> | <p><u>Chemical Tests (cont'd)</u></p> <p>Total Organic Carbon Dissoved Organic Carbon Total Inorganic Carbon Dissolved Inorganic Carbon Total Carbon</p> <p>Biochemical Oxygen Demand (BOD)</p> <p>Biochemical Oxygen Demand (BOD)</p> <p>Polycyclic Aromatic Hydrocarbons (PAHs):</p> <p>Naphthalene Acenaphthene Acenaphthylene Fluorene Phenanthrene Anthracene Fluoranthene Pyrene Benz(a)anthracene Benzo(b/k)fluoranthene Benzo(a)pyrene Indeno(123,cd)pyrene Dibenzo(ah)anthracene Benzo(ghi)perylene Chrysene</p> | <p>In-house method TM060W by TOC analyser</p> <p>In house method TM058 using DO probe and meter</p> <p>In house method TM058 using Manometric Bottle top sensors</p> <p>In-house method TM004W using stir bar extraction (PM030W) and GC-MS</p> |



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| <p>WATERS (cont'd)</p> <p>Surface water, groundwater, leachate prepared from soils and leachate from landfill</p> | <p><u>Chemical Tests (cont'd)</u></p> <p>Elements:</p> <p>Aluminium Antimony Arsenic Barium Cadmium Calcium Cobalt Chromium Copper Iron Lead Mercury Magnesium Manganese Molybdenum Nickel Phosphorus Potassium Selenium Sodium Vanadium Zinc</p> <p>Mercury</p> | <p>PM017S 10:1 leachate preparation based on BS EN 12457 In-house method TM 030W using PM 014W using ICP-OES</p> |
| <p>Surface water, groundwater, leachate prepared from soils and leachate from landfill</p> | <p>Ammonium Chloride Nitrate (derived) Nitrite Phosphate Sulphate</p> <p>Total Solids Total Dissolved Solids</p> <p>Total Suspended Solids</p> | <p>In house method TM061 using PM 031W using CVAFS</p> <p>PM017S 10:1 leachate preparation based on BS EN 12457</p> <p>In-house method TM038 using PM 031W using discrete analyser</p> <p>In-house method TM020W using PM 031W by Gravimetry</p> <p>In-house method TM037W using PM 031W by Gravimetry</p> |



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| <p>WATERS (cont'd)</p> <p>Tap water (non regulatory) surface water, groundwater, leachate prepared from soils and leachate from landfill</p> <p>Drinking water (non regulatory), groundwater, surface water and trade effluent</p> | <p><u>Chemical Tests (cont'd)</u></p> <p>Cyanide - Total and Free</p> <p>Polychlorinated Biphenyls (PCBs):</p> <p>PCB 28 PCB 52 PCB 101 PCB 81 PCB 77 PCB 123 PCB 118 PCB 114 PCB 157 PCB 105 PCB 153 PCB 126 PCB 167 PCB 138 PCB 156 PCB 180 PCB 169 PCB 189</p> <p>Settled Chemical Oxygen Demand</p> | <p>In-house method TM089W/S using PM 031W by segmented flow analysis</p> <p>PCB Congeners by in house method TM017W using stir bar extraction (PM030W) and GC-MS analysis.</p> |
| <p>Landfill leachate and leachate prepared from soil</p> | <p>Elements:</p> <p>Boron Beryllium</p> | <p>In-house method TM057W by spectrophotometry</p> <p>PM017S 10:1 leachate preparation based on BS EN 12457 In-house method TM030W using ICP-OES</p> |
| <p>Surface Water and Ground Water</p> | <p>Tert-Amyl methyl ether (TAME) Diisopropylether(DIPE) Ethyl-tert-butyl ether (ETBE)</p> | <p>In-house method TM083 by preparation method PM 039W and using Headspace GCMS</p> |



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|---------------------------|--|---|
| SOILS (cont'd) | <p><u>Chemical Tests (cont'd)</u></p> <p>Gasoline Range Organics (GRO) and banding: (cont'd)</p> <p>Also aliphatic/aromatic fractionation and subsequent banding: Aliphatic: >C5-C6 >C6-C8 Aromatic (equivalent carbon EC): >C6-C8 >C8-C10</p> <p>Extractable petroleum hydrocarbons (EPH) in the range: C8-C40 Diesel range organics (DRO) C25-C40 range organics - lubricating oil</p> <p>Extractable petroleum hydrocarbons (EPH) in the range: >C8-C40, including banding: >C8-C10 >C10-C12 >C12-C16 >C16-C21 >C21-C35</p> <p>>C8-C10 >C10-C20 >C20-C30 >C30-C40</p> | <p>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil (cont'd)</p> <p>In-house method TM 036S using PM 012S by headspace GC-FID (cont'd)</p> <p>In-house methods PM008S (end over end shake) followed by TM005S using GC-FID</p> <p>In house methods PM008S (end over end shake) fractionation by RapidTrace workstation PM016 followed by TM005S using GC-FID</p> |



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| SOILS (cont'd) | <p><u>Chemical Tests (cont'd)</u></p> <p>Extractable petroleum hydrocarbons (EPH) (cont'd)</p> <p>And including aliphatic/aromatic fractionation and subsequent banding: Aliphatic: >C8-C10 >C10-C12 >C12-C16 >C16-C21 >C21-C35 >C35-C40</p> <p>Polycyclic Aromatic Hydrocarbons (PAHs):</p> <p>Naphthalene Acenaphthene Fluorene Phenanthrene Fluoranthene Chrysene Benzo(b/k)fluoranthene Indeno(123,cd)pyrene</p> <p>Phenols: Phenol m/p-Cresol o-Cresol Xylenols 2,3,5-Trimethylphenol 2-Isopropylphenol</p> | <p>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil (cont'd)</p> <p>In house methods PM008S (end over end shake) fractionation by RapidTrace workstation PM016 followed by TM005S using GC-FID (cont'd)</p> <p>In-house method TM004S using end over end shake (PM008S) and GC-MS</p> <p>In-house method TM026 using solvent extraction (PM021S) and HPLC</p> |



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| SOILS (cont'd) | <p><u>Chemical Tests (cont'd)</u></p> <p>Elements: Arsenic Barium Cadmium Chromium Cobalt Copper Lead Manganese Mercury Molybdenum Nickel Selenium Zinc</p> <p>Water soluble boron</p> <p>Water Soluble Anions: Chloride Nitrite Nitrate (derived) Sulphate</p> <p>Cyanide - Total</p> | <p>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil (cont'd)</p> <p>In-house method TM030S using PM 015S and PM 077S by ICP-OES</p> <p>In-house method TM074 by PM 015S and PM 077S by ICP-OES</p> <p>In-house method TM038 by PM 020S by discrete analyser</p> <p>In-house method TM089W/S by PM 045S by segmented flow analysis</p> |



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| SOILS (cont'd) | <p><u>Chemical Tests (cont'd)</u></p> <p>Polychlorinated Biphenyls (PCBs):</p> <p>PCB 81 PCB 77 PCB 123 PCB 118 PCB 114 PCB 105 PCB 126 PCB 167 PCB 156/157 PCB 169 PCB 189 PCB 28 PCB 52 PCB 101 PCB 153 PCB 138 PCB180</p> <p>pH</p> <p>Total Sulphate</p> <p>Volatile Organic Compounds:</p> <p>MTBE Chloroethane Trichlorofluoromethane 1,1-Dichloroethene 1,1 - Dichloroethane Cis-1,2-Dichloroethene Bromochloromethane Chloroform 1,1,1-Trichloroethane Carbon Tetrachloride 1,2-Dichloroethane Benzene Trichloroethene</p> | <p>Documented In-House Method to meet the requirements of the Environment Agency MCERTS Performance Standard - chemical testing of soil (cont'd)</p> <p>PCB Congeners by in house method TM017S using Preparation method PM008S and GC-MS analysis.</p> <p>In-house method TM073 using PM 011S by Metrohm robotic sample processor</p> <p>In-house method PM029S followed by TM050S using ICP-OES</p> <p>In-house method TM015S by PM 010S by headspace GC-MS</p> |



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| ATMOSPHERIC POLLUTANTS AND EFFLUENTS – STACK GAS SAMPLES | <u>Chemical Tests</u> | National, European, International and Environment specified standards including MIDs and documented in-house methods to meet the requirements of the Environment Agency (MCERTS) performance standard for laboratories carrying out testing of samples from stack emissions monitoring |
| Filters, probe and impinger rinses (Acetone, toluene and water), XAD-2 resin traps | Poly Chlorinated Dibenzo-p-Dioxins PCDDs 2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD | BS EN 1948-2:2006 and BS EN 1946-3:2006 Extraction followed by High Resolution Gas Chromatography High Resolution Mass Spectrometry (GC-HRMS) Extraction PM137 GCHRMS TM201 |
| Filters, probe and impinger rinses (Acetone, toluene and water), XAD-2 resin traps | Poly Chlorinated Dibenzo Furans PCDFs 2,3,7,8-TCDF 1,2,3,7,8-PCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF | BS EN 1948-2:2006 and BS EN 1946-3:2006 Extraction followed by High Resolution Gas Chromatography High Resolution Mass Spectrometry (GC-HRMS) Extraction PM137 GCHRMS TM201 |



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| ATMOSPHERIC POLLUTANTS AND EFFLUENTS – STACK GAS SAMPLES (Cont'd) | <u>Chemical Tests (Cont'd)</u> | National, European, International and Environment specified standards including MIDs and documented in-house methods to meet the requirements of the Environment Agency (MCERTS) performance standard for laboratories carrying out testing of samples from stack emissions monitoring |
| Filters, probe and impinger rinses (Acetone, toluene and water), XAD-2 resin traps | Polychlorinated Biphenyls PCB | BS EN 1948-4:2010+A1:2013 Extraction followed by High Resolution Gas Chromatography High Resolution Mass Spectrometry (GC-HRMS) Extraction PM137 GCHRMS TM201 |
| ASH | Congener 77 Congener 81 Congener 105 Congener 114 Congener 118 Congener 123 Congener 126 Congener 156 Congener 157 Congener 167 Congener 169 Congener 189 Poly Chlorinated Dibenzo-p-Dioxins PCDDs 2,3,7,8-TCDD 1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD | Documented In-house methods based on EPA 1613. Extraction followed by High Resolution Gas Chromatography High Resolution Mass Spectrometry (GC-HRMS) Extraction PM139 GC-HRMS TM206 |



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| <p>ATMOSPHERIC POLLUTANTS AND EFFLUENTS – STACK GAS SAMPLES (Cont'd)</p> <p>ASH</p> | <p><u>Chemical Tests (Cont'd)</u></p> <p>Poly Chlorinated Dibenzo Furans PCDFs</p> <p>2,3,7,8-TCDF 1,2,3,7,8-PCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF</p> <p>Polychlorinated Biphenyls PCB</p> <p>Congener 77 Congener 81 Congener 105 Congener 114 Congener 118 Congener 123 Congener 126 Congener 156 Congener 157 Congener 167 Congener 169 Congener 189</p> | <p>Documented In-house methods based on EPA 1613. Extraction followed by High Resolution Gas Chromatography High Resolution Mass Spectrometry (GC-HRMS) Extraction PM139 GC-HRMS TM206</p> <p>Documented In-house methods based on EPA 1668. Extraction followed by High Resolution Gas Chromatography High Resolution Mass Spectrometry (GC-HRMS) Extraction PM139 GC-HRMS TM206</p> |



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| <p>ATMOSPHERIC POLLUTANTS Collected on desorption tubes</p> <p>Tenax ATD tubes</p> | <p>Chemical Tests</p> <p>Diethyl ether</p> <p>Hexane 1-Chlorobutane Benzene 1,1-Dichloropropene Chloroacetonitrile Trichloroethene Dibromomethane Methyl methacrylate Bromodichloromethane cis-1,3-dichloropropen Toluene trans-1,3-dichloroprop 1,1,2-Trichloroethane 1,3-Dichloropropane Ethyl methacrylate Dibromochloromethane 1,2-Dibromoethane Tetrachloroethylene Chlorobenzene 1,1,1,2-tetrachloroeth Ethylbenzene M/P Xylene Bromoform Styrene O Xylene 1,1,2,2-Tetrachloroeth 1,2,3-Trichloropropane Isopropylbenzene trans-1,4-dichloro-2-b Bromobenzene 2-Chlorotoluene Propyl benzene 4-Chlorotoluene 1,3,5-Trimethylbenzene tert-Butyl benzene 1,2,4-Trimethylbenzene 1,3-Dichlorobenzene sec-Butylbenzene 1,4-Dichlorobenzene</p> | <p>In-house method TM 197G by Thermal Desorption GC-MS</p> |



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| ATMOSPHERIC POLLUTANTS Collected on desorption tubes Tenax ATD tubes | Chemical Tests Diethyl ether p-isopropyl toluene 1,2-Dichlorobenzene n-butyl benzene Hexachloroethane 1,2-dibromo-3-chloropr Nitrobenzene 1,2,4-Trichlorobenzene Naphthalene 1,2,3-Trichlorobenzene Hexachlorobutadiene | In-house method TM 197G by Thermal Desorption GC-Mass Spectrometry |
| END | | |