SINGAPORE LABORATORY ACCREDITATION SCHEME

Accredited Laboratory SAC-SINGLAS

Schedule

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Certificate No. : LA-2015-0595-F

Issue No. : 11

Date : 29 September 2021

FIELD OF TESTING : Environmental Testing

MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES / EQUIPMENT	SIGNATORIES
A. WATER ANALYSIS • Drinking water (Potable) • Non-potable water • Fresh water • Industrial water • Wastewater, Trade effluent • Ground water • RO water • DI water • Swimming pool water • Cooling tower water • Sea water		<u>APHA Methods are based on 23rd Edition: 2017</u>	
	1. Acidity	APHA 2310B	WPH, TTP, UFG, LYH, CVK, LJJ
	2. Acid and Base-Neutralizing Capacities	DIN 38409-7: 2005	WPH, TTP, UFG, LYH, CVK, LJJ
	3. Alkalinity	APHA 2320B	WPH, TTP, UFG, LYH, CVK, LJJ
	4. Ammonia	APHA 4500-NH_3 (D) APHA 4500-NH_3 (H)	WPH, TTP, UFG, LYH, CVK, LJJ
	5. Biochemical Oxygen Demand (BOD)	APHA 5210B	WPH, TTP, UFG, LYH, CVK, LJJ
	6. Bromide	APHA 4110B	WPH, TTP, UFG, LYH, CVK, LJJ
	7. Calcite Saturation	DIN 38404-10: 1995	WPH, TTP, UFG, LYH, CVK, LJJ
	8. Carbon Dioxide and Forms of Alkalinity	APHA 4500-CO_2 (D)	WPH, TTP, UFG, LYH, CVK, LJJ
	9. Cations by Ion Chromatography (IC)	ASTM D6919-17	WPH, TTP, UFG, LYH, CVK, LJJ

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	10. Chemical Oxygen Demand (COD)	HACH Method 8000 (Oct 2014) APHA 5220B APHA 5220D	WPH, TTP, UFG, LYH, CVK, LJJ
	11. Chemical Oxygen Demand (COD) for Seawater or Water Samples with High Chloride Content	In-house method MLS-SOP-WQ-029 Rev 0 (adapted from HACH)	WPH, TTP, UFG, LYH, CVK, LJJ
	12. Chloride	APHA 4110B	WPH, TTP, UFG, LYH, CVK, LJJ
	13. Chlorine as Cl_2 (Residual)	Lovibond Test Kit (DPD) Rev 1.0 APHA 4500-Cl (F)	WPH, TTP, UFG, LYH, CVK, LJJ
	14. Chlorine (Free)	HACH Method 8021 (Jan 2014)	WPH, TTP, UFG, LYH, CVK, LJJ
	15. Chlorine (Total)	HACH Method 8167 (Sep 2018)	WPH, TTP, UFG, LYH, CVK, LJJ
	16. Chlorophyll-a	APHA 10200H (2) (Spectrophotometric) APHA 10200H (3) (Fluorometric)	WPH, TTP, UFG, LYH, CVK, LJJ
	17. Chromium VI	APHA 3500-Cr (B)	WPH, TTP, UFG, LYH, CVK, LJJ
	18. Colour	APHA 2120B APHA 2120C In-House Method: MLS-SOP-WQ-036 Rev 0 (using Lovibond Tintometer)	WPH, TTP, UFG, LYH, CVK, LJJ
	19. Complex Cyanide (by Calculation)	In-House Method: MLS-SOP-WQ-035 Rev 0	WPH, TTP, UFG, CVK
	20. Conductivity	APHA 2510B	WPH, TTP, UFG, LYH, CVK, LJJ

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	21. Cyanide (Free)	USEPA 9016 (Jun 2010)	WPH, TTP, UFG, CVK
	22. • Cyanide (Total) • Cyanide (Weak acid dissociable)	APHA 4500-CN^- (N)	WPH, TTP, UFG, CVK
	23. • Cyanide (Total) • Cyanide (Weak acid dissociable)	APHA 4500-CN- (O)	WPH, TTP, UFG, CVK
	24. Cyanogen Chloride	APHA 4500-CN- (J)	WPH, TTP, UFG, CVK
	25. Cyanuric acid	HACH Method 8139 (Jan 2014)	WPH, TTP, UFG, LYH, CVK, LJJ
	26. Detergents (MBAS)	APHA 5540C	WPH, TTP, UFG, LYH, CVK
	27. Disinfectant by-products: • Bromochloroacetonitrile • Chloropicrin • Dibromoacetonitrile • Dichloroacetonitrile • Trichloroacetonitrile	USEPA 551.1 (1995)	WPH, TTP, UFG, LJJ
	28. Dissolved Oxygen	APHA 4500-O (G)	WPH, TTP, UFG, LYH, CVK, LJJ
	29. Elements / Metals	APHA 3125B (Refer to Appendix 1 for list of elements)	WPH, TTP, UFG, CVK, NKO
	30. Flavor Threshold Number (FTN)	APHA 2160B	WPH, TTP, UFG, LYH, CVK
	31. Flocculated Filtered Chemical Oxygen Demand (ff COD)	Methods for Wastewater Characterization in Activated Sludge Modeling (2004) Section 7.4.1	WPH, TTP, UFG LYH, CVK, LJJ
	32. Fluoride	APHA 4110B APHA 4500-F (C)	WPH, TTP, UFG, LYH, CVK, LJJ

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	33. Formaldehyde	APHA 6252B	WPH, TTP, UFG, LJJ
	34. Geosmin (GSM) 2-Methylisoborneol (MIB)	APHA 6040D	WPH, TTP, UFG
	35. Haloacetic Acids & Dalapon: • Bromochloroacetic acid (BCAA) • Dibromoacetic acid (DBAA) • Dibromochloroacetic acid (DBCAA) • Dichloroacetic acid (DCAA) • Dichlorobromoacetic acid (DCBAA) • Monobromoacetic acid (MBAA) • Monochloroacetic acid (MCAA) • Tribromoacetic acid (TBAA) • Trichloroacetic acid (TCAA) • Dalapon	USEPA 552.3 (2003)	WPH, TTP, UFG, LJJ
	36. Hardness as $CaCO_3$	APHA 2340B	WPH, TTP, UFG, LYH, CVK, NKO
	37. Hydrazine	HACH Method 8141 (Sep 2019) ASTM D1385-07	WPH, TTP, UFG, LYH, CVK, LJJ
	38. Inorganic Anions (Bromate, Chlorite, Chlorate)	USEPA 300.1 (1997)	WPH, TTP, UFG, LYH, CVK, LJJ
	39. Inorganic Anions in Seawater and NaOCl (Bromate, Chlorite, Chlorate)	In-house method MLS-SOP-WQ-034 Rev 0 (Sample Preparation) USEPA 300.1 (1997) (Analysis)	WPH, TTP, UFG, LYH, CVK, LJJ

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	40. Iron (Fe^{2+})	HACH Method 8146 (Sep 2019)	WPH, TTP, UFG, LYH, CVK, LJJ
	41. Mercury	USEPA 245.1 (FIMS) (1994)	WPH, TTP, UFG, CVK, NKO
	42. Microcystins	Abraxis Test Kit	WPH, TTP, UFG LYH, CVK
	43. Microcystins-LR	USEPA 544 (Feb 2015)	WPH, TTP, LJJ
	44. Nitrate	APHA 4110B APHA 4500-NO_3 (I)	WPH, TTP, UFG, LYH, CVK, LJJ
	45. Nitrite	APHA 4110B APHA 4500-NO_3 (I)	WPH, TTP, UFG, LYH, CVK, LJJ
	46. Odor Threshold Number (OTN)	APHA 2150B	WPH, TTP, UFG, LYH, CVK
	47. Oil and Grease	USEPA 1664 (Feb 2010)	WPH, TTP, UFG, LYH, CVK
	48. Oil & Grease (Hydrocarbon)	APHA 5520F	WPH, TTP, UFG, LYH, CVK
	49. Oil & Grease (Total) by FTIR	In-house method MLS-SOP-WQ-033 Rev 0 (adapted from APHA 5520C)	WPH, TTP, UFG, LYH, CVK
	50. Oil & Grease (Total) by Gravimetric	APHA 5520B	WPH, TTP, UFG, LYH, CVK
	51. pH	APHA 4500-H (B)	WPH, TTP, UFG, LYH, CVK, LJJ
	52. Phenolic Compounds (as Phenol)	APHA 5530B (Distillation) APHA 5530D (Determination)	WPH, TTP, UFG, CVK

MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES / EQUIPMENT	SIGNATORIES
		In-house method: MLS-SOP-WQ-009 Rev 2 using Microdist Method (Distillation) APHA 5530D using Flow Injection Analysis Colorimetry (Determination)	WPH, TTP, UFG, CVK
		In-house method: MLS-SOP-WQ-009 Rev 2	WPH, TTP, UFG, CVK
	53. Phosphate as PO_4	APHA 4110B APHA 4500-P (E) APHA 4500-P (G)	WPH, TTP, UFG, LYH, CVK, LJJ (APHA 4110B only)
	54. Polybrominated Diphenyl Ethers (PBDEs)	In-house method: MLS-SOP-WQ-020 Rev 1	WPH, TTP, UFG, LJJ
	55. Salinity	APHA 2520B	WPH, TTP, UFG, LYH, CVK, LJJ
	56. Settleable Solids	APHA 2540F	WPH, TTP, UFG, LYH, CVK
	57. Silica as SiO_2	APHA 4500-SiO_2 (D)	WPH, TTP, UFG, LYH, CVK, LJJ
	58. Silt Density Index (SDI)	ASTM D4189-07	WPH, TTP, UFG, LYH, CVK, LJJ
	59. Sulfate	APHA 4110B	WPH, TTP, UFG, LYH, CVK, LJJ
	60. Sulfide	APHA 4500-S^{2-} (D) APHA 4500-S^{2-} (F)	WPH, TTP, UFG, LYH, CVK, LJJ
	61. Taste	APHA 2160C	WPH, TTP, UFG, LYH, CVK
	62. Temperature	APHA 2550B	WPH, TTP, UFG, LYH, CVK, LJJ

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	63. Thiocyanate	APHA 4500-CN- (M)	WPH, TTP, UFG, CVK
	64. Total Dissolved Solids	APHA 2540C	WPH, TTP, UFG, LYH, CVK
	65. Total Kjeldahl Nitrogen Content (TKN)	APHA 4500-N_{org} (D)	WPH, TTP, UFG, CVK
	66. Total Nitrogen	APHA 4500-N (C)	WPH, TTP, UFG, CVK
	67. Total Nitrogen (TN) Total Phosphorus (TP)	APHA 4500-P (J)	WPH, TTP, UFG, CVK
	68. • Total Organic Carbon (TOC) • Dissolved Organic Carbon (DOC)	APHA 5310B	WPH, TTP, UFG, LYH, CVK, LJJ
	69. Total Organic Carbon (TOC)	APHA 5310C	WPH, TTP, UFG, LYH, CVK, LJJ
	70. Total Phosphorus	APHA 4500-P (H)	WPH, TTP, UFG, CVK
		In-house method: MLS-SOP-WQ-028 Rev 0 (Digestion) APHA 4500-P (E) (Determination)	WPH, TTP, UFG LYH, CVK
	71. Total Solids	APHA 2540B	WPH, TTP, UFG, LYH, CVK
	72. Total Suspended Solids	APHA 2540D	WPH, TTP, UFG, LYH, CVK
	73. Total Volatile Solids	APHA 2540E	WPH, TTP, UFG, LYH, CVK
	74. Tributyltin (TBT)	APHA 6710B	WPH, TTP, UFG, LJJ

MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES / EQUIPMENT	SIGNATORIES
	75. Turbidity	APHA 2130B	WPH, TTP, UFG, LYH, CVK, LJJ
	76. UV-Absorbing Organic Constituents at 254nm / UV Transmittance (UVT)	APHA 5910B	WPH, TTP, UFG, LYH, CVK, LJJ
	77. Volatile Fatty Acids (VFA)	APHA 5560C HACH Method 10240 (Mar 2015)	WPH, TTP, UFG, LYH, CVK
		APHA 5560D	WPH, TTP, LJJ
B. ENVIRONMENTAL SAMPLES • Water • Soil • Sediment • Sludge	1. Elements by ICP-OES	USEPA 3015A (2007) USEPA 3050B (1996) USEPA 3051A (2007) USEPA 3052 (1996) APHA 3120B (Refer to Appendix 5 for list of elements)	WPH, TTP, UFG, CVK, NKO
	2. Heavy Metals by ICP-MS	USEPA 3015A (2007) USEPA 3050B (1996) USEPA 3051A (2007) USEPA 3052 (1996) APHA 3125B (Refer to Appendix 1 for list of elements)	WPH, TTP, UFG, CVK, NKO
	3. Leaching of Granular Waste Materials and Sludges	BS EN 12457-1:2002	WPH, TTP, UFG, CVK
	4. Mercury Speciation by FIMS: • Total Mercury • Inorganic Mercury • Organic Mercury	In-house method: MLS-SOP-SED-006 Rev 1	WPH, TTP, UFG, CVK, NKO
	5. Oil & Grease	USEPA 9071B (1998)	WPH, TTP, UFG, CVK
	6. Oil & Grease for Sludge	APHA 5520E	WPH, TTP, UFG, CVK

MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES / EQUIPMENT	SIGNATORIES
	7. Per- and polyfluoroalkyl substances (PFASs) by LCMS-MS: • Perfluorooctanesulfonic acid (PFOS) • Perfluorooctanoic acid (PFOA)	USEPA 537.1 (Mar 2020) USEPA 8327 (2019)	WPH, TTP, LJJ
	8. Pesticides and Toxaphene	USEPA 8081B (2007) USEPA 3510C (1996) USEPA 3545A (2007) (Refer to Appendix 6 for list of compounds)	WPH, TTP, LJJ
	9. Pharmaceutical and Personal Care Products in Environmental Samples: • Caffeine • Triclocarban • Ibuprofen • Naproxen • Gemfibrozil • Diclofenac Sodium • Ketoprofen • Acetaminophen	USEPA 1694 (2007)	WPH, TTP, LJJ
	10. Polychlorinated Biphenyls (PCB)	USEPA 8082A (2007) USEPA 3510C (1996) USEPA 3545A (2007) (Refer to Appendix 6 for list of compounds)	WPH, TTP, LJJ
	11. Semi-Volatile Organic Compounds (SVOC)	USEPA 8270E (Jun 2018) (Refer to Appendix 4 for list of compounds)	WPH, TTP, LJJ
	12. Synthetic Precipitation Leaching Procedure (SPLP)	USEPA 1312 (1994) APHA 3120B APHA 3125B USEPA 6010D (Jul 2018)	WPH, TTP, UFG, CVK, NKO
	13. Time-to-Filter	APHA 2710H	WPH, TTP, UFG, CVK, LJJ

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	14. Total, Fixed & Volatile Solids in Solid & Semi-solid Samples	APHA 2540G	WPH, TTP, UFG, CVK
	15. Total Organic Carbon (TOC)	BS EN 13137:2001	WPH, TTP, UFG, LJJ
	16. Total Petroleum Hydrocarbon (TPH) by FTIR	USEPA 8440 (1996) USEPA 3540C (1996) (Extraction)	WPH, TTP, UFG, CVK
	17. Total Petroleum Hydrocarbon: • Diesel Range Organics (DRO) • Gasoline Range Organics (GRO)	USEPA 8015C (2007)	WPH, TTP, LJJ
	18. Toxicity Characteristic Leaching Procedure (TCLP): Ag, As, Ba, Cd, Cr, Cu, Fe, Hg, Mn, Ni, Pb, Se, Zn, CN, F, Phenolic compounds as Phenol	USEPA 1311 (1992) (exclude Zero-Headspace Extraction) APHA 3120B APHA 3125B USEPA 6010D (Jul 2018)	WPH, TTP, UFG, CVK, NKO
	19. Volatile Organic Compounds (VOC)	USEPA 8260D (Jun 2018) (Refer to Appendix 2 for list of compounds)	WPH, TTP, LJJ
	20. Volatile Organic Compounds (VOC) and Solvents	USEPA 8260D (Jun 2018) USEPA 1666 Rev A (1998) (Refer to Appendix 3 for list of compounds)	WPH, TTP, LJJ
C. FINE AGGREGATE / SOIL / SEDIMENT	1. Bioaccessibility Arsenic and Lead	In-house method: MLS-SOP-SED-002 Rev 1	WPH, TTP, UFG, CVK, NKO
	2. Carbonate	BS 1377-3: 2018 Section 8	WPH, TTP, UFG
	3. Chloride	BS 1377-3: 2018	WPH, TTP
	4. Fall Velocity by Owen Tube Method	In-house method: MLS-SOP-SED-001 Rev 0	WPH, TTP, UFG

MATERIALS / PRODUCTS TESTED	TESTS / PROPERTIES	STANDARD METHODS / TECHNIQUES / EQUIPMENT	SIGNATORIES
	5. Mass Loss on Ignition (440°C)	BS 1377-3: 2018	WPH, TTP
	6. Material in Soils Finer than 75 µm	ASTM D1140-17	WPH, TTP
	7. Moisture	BS 1377-2: 1990	WPH, TTP
	8. pH	BS 1377-3: 2018	WPH, TTP
	9. Shell / Coral Content	SANS 5840: 2008 Ed 2.2	WPH, TTP, UFG
	10. Sulfate	BS 1377-3: 2018	WPH, TTP
D. WATER FOR MAKING CONCRETE	1. Suitability of Water	BS EN 1008: 2002 (Preliminary assessment)	WPH, TTP, UFG, LYH, CVK
E. WATER MICROBIOLOGY • Drinking water • Non-potable water • Fresh water • Industrial water • Wastewater, Trade effluent • Ground water • RO water • DI water • Swimming pool water • Cooling tower water • Sea water	1. Actinomycete using Double-Layer Agar Technique	APHA 9250B	WPH, JRG, LCH, LWE
	2. Aerobic Endospore Bacteria	APHA 9218B	WPH, JRG, LCH, LWE
	3. Aeromonas	APHA 9260L	WPH, JRG, LCH, LWE
	4. Aspergillus	In-house method: MLS-SOP-MB-017 Rev 2	WPH, JRG, LCH
	5. Assimilable Organic Carbon (AOC)	APHA 9217B	WPH, JRG, LCH
	6. *Bacillus subtilis*	In-house method: MLS-SOP-MB-018 Rev 3	WPH, JRG, LCH
	7. Campylobacter	ISO 17995: 2019	WPH, JRG, LCH, LWE
	8. Clostridium perfringens	NSM HPA Reference No. W5i3.1:2005	WPH, JRG, LCH, LWE

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	9. Coliforms	APHA 9221B (MPN Method) APHA 9222B (MF Method) APHA 9222C (MF Method)	WPH, JRG, LCH, LWE
	10. Cryptosporidium and Giardia	USEPA 1623.1 (2012)	WPH, JRG, LCH
	11. Enterococci	APHA 9230C	WPH, JRG, LCH, LWE
	12. *Escherichia coli*	APHA 9221F (MPN Method) APHA 9222H (MF Method)	WPH, JRG, LCH, LWE
	13. Faecal Coliforms	APHA 9221E (MPN Method) APHA 9222D (MF Method) APHA 9222E (MF Method)	WPH, JRG, LCH, LWE
	14. Faecal *Streptococci*	APHA 9230C (MF Method)	WPH, JRG, LCH, LWE
	15. Klebsiella spp. by Membrane Filter Procedure	APHA 9222F	WPH, JRG, LCH, LWE
	16. Male-specific (F+) and Somatic Coliphage	USEPA 1602 (2001)	WPH, JRG, LCH, LWE
	17. *Pseudomonas aeruginosa*	APHA 9213E (MF Method)	WPH, JRG, LCH, LWE
	18. *Salmonella* spp.	APHA 9260B	WPH, JRG, LCH, LWE
	19. Sampling and Extraction of Enterovirus	APHA 9510C	WPH, JRG, LCH
	20. *Shigella* spp.	APHA 9260E	WPH, JRG, LCH, LWE
	21. Spore of Sulphite-reducing Anaerobes	BS EN 26461-2: 1993 ISO 6461/2: 1986	WPH, JRG, LCH, LWE
	22. *Staphylococcus aureus*	APHA 9213B (MF Method)	WPH, JRG, LCH, LWE

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	23. Sulfate-Reducing Bacteria using MPN Technique	ASTM D4412-19	WPH, JRG, LCH, LWE
	24. Total Bacteria Count	APHA 9215B (PP Method) APHA 9215C (SP Method) APHA 9215D (MF Method) ISO 6222: 1999	WPH, JRG, LCH, LWE
	25. *Vibrio cholera*	APHA 9260H	WPH, JRG, LCH, LWE
	26. Yeast and Mould	APHA 9610D	WPH, JRG, LCH, LWE
E. WATER MICROBIOLOGY • Fresh and Marine Water	27. Phytoplankton & Zooplankton Sampling, Identification and Counting Technique	APHA 10200F APHA 10200G	WPH, JRG, LCH
F. COOLING TOWER AND WATER FOUNTAIN	1. Examination of Legionellae including Legionella pneumophila	AS 3896: 2017	WPH, JRG, LCH
	2. Detection and Enumeration of Legionella	BS 6068-4.12: 1998 ISO 11731: 2017	WPH, JRG, LCH
G. PURIFIED WATER, PROCESS, BIOLOGICS AND PHARMACEUTICAL WATER, MEDICAL DEVICES	1. Bacterial Endotoxin test by Chromogenic Kinetic Assay	USP 43 <85>	WPH, JRG, LCH
H. INDUSTRIAL HYGIENE	1. Elements by ICP Ag, Al, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, K, Li, Mg, Mn, Mo, Ni, Sb, Se, Sr, Sn, Ti, V, Zn	NIOSH 7301: 2003	WPH, TTP, UFG, CVK

Schedule

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I. SOURCE EMISSION	1. Determination of Hydrogen Halide and Halogen Emissions From Stationary Sources Isokinetic Method	USEPA Method 26a (Oct 2020) (Analysis only) APHA 4110B	WPH, TTP, UFG
	2. Determination of Metals Emissions From Stationary Sources	USEPA Method 29 (Aug 2017) (Analysis only) APHA 3125B APHA 3120B USEPA 6010D (Jul 2018)	WPH, TTP, UFG, CVK

Approved Signatories

S/N	Names	Initials
1.	Mr Wong Pik Hung	WPH
2.	Mr Tan Thuan Piang	TTP
3.	Ms Umalia Flordelina Gabriel	UFG
4.	Mr Lee Chun Hao Eric	LCH
5.	Mr Jagadeesan Renugopal	JRG
6.	Mr Lim Yeu How	LYH
7.	Mr Chong Vui Ket, Xavier	CVK
8.	Mr Lee Yean Jie	LJJ
9.	Mr Leong Wei En, Isaac	LWE
10.	Mr. Ng Kok Ong	NKO

Note:

This laboratory is accredited in accordance with the recognised International Standard ISO/IEC 17025. A laboratory's fulfilment of the requirements of ISO/IEC 17025 means the laboratory meets both the technical competence requirements and **management system requirements** that are necessary for it to consistently deliver technically valid test results. The **management system requirements** in ISO/IEC 17025 are written in language relevant to laboratory operations and operate generally in accordance with the principles of ISO 9001.

Appendix 1: Metals by ICPMS (APHA 3125B)

Elements

1.	Silver as Ag
2.	Aluminium as Al
3.	Arsenic as As
4.	Gold as Au
5.	Boron as B
6.	Barium as Ba
7.	Beryllium as Be
8.	Bismuth as Bi
9.	Calcium as Ca
10.	Cadmium as Cd
11.	Cobalt as Co
12.	Chromium as Cr
13.	Copper as Cu
14.	Iron as Fe
15.	Germanium as Ge
16.	Mercury as Hg
17.	Holmium as Ho
18.	Indium as In
19.	Iridium as Ir
20.	Potassium as K
21.	Lanthanum as La
22.	Lithium as Li
23.	Magnesium as Mg
24.	Manganese as Mn
25.	Molybdenum as Mo
26.	Sodium as Na

27.	Niobium as Nb
28.	Neodymium as Nd
29.	Nickel as Ni
30.	Phosphorus as P
31.	Lead as Pb
32.	Palladium as Pd
33.	Platinum as Pt
34.	Rhodium as Rh
35.	Antimony as Sb
36.	Scandium as Sc
37.	Selenium as Se
38.	Silicon as Si
39.	Tin as Sn
40.	Strontium as Sr
41.	Tantalum as Ta
42.	Terbium as Tb
43.	Tellurium as Te
44.	Thorium as Th
45.	Titanium as Ti
46.	Thallium as Tl
47.	Uranium as U
48.	Vanadium as V
49.	Tungsten as W
50.	Yttrium as Y
51.	Zinc as Zn
52.	Zirconium as Zr

Appendix 2: Volatile Organic Compounds, VOC (USEPA 8260D)

Compounds

MONOCYCLIC AROMATICS
Benzene
Toluene
Ethylbenzene
o,m,p-xylene
Styrene

OXYGENATED COMPOUNDS
Cyclohexanone
Tetrahydrofuran
Tetrahydrothiophene

FUMIGANTS
1,2-Dichloropropane
1,3-Dichloropropane
2,2-Dichloropropane
1,3-Dichloropropene (Cis)
1,3-Dichloropropene (Trans)

HALOGENATED AROMATICS
1,4-Dichlorobenzene
1,2-Dichlorobenzene
1,3-Dichlorobenzene

TRIHALOMETHANES
Chloroform
Bromodichloromethane
Dibromochloromethane
Bromoform

HALOGENATED ALIPHATICS
Vinyl Chloride
Chloromethane
Chlorobenzene
Chloroethene
Chloroethane
1,1-Dichloroethene
1,2-Dichloroethene (cis + Trans)
1,1-Dichloroethane
Dichloromethane
Carbon Tetrachloride
Trichloroethene
1,1,1-Trichloroethane
1,2-Dichloroethane
Tetrachloromethane
1,1,2-Trichloroethane
Tetrachloroethene
1,1,1,2-Tetrachloroethane
1,1,2,2-Tetrachloroethane

Appendix 3: Volatile Organic Compounds, VOCs and Solvents

S/N	Compound	Method
1	Methylene Chloride	USEPA 8260
2	Trichloroethylene (TCE)	USEPA 8260
3	1,1,1-trichloroethane	USEPA 8260
4	Perchloroethylene (PCE)	USEPA 8260
5	Tetrachloromethane	USEPA 8260
6	1,1,2-Trichloroethane	USEPA 8260
7	Toluene	USEPA 8260
8	Styrene	USEPA 8260
9	Methyl tert-butyl-ether (MTBE)	USEPA 8260
10	Nonane	USEPA 8260
11	Decane	USEPA 8260
12	Ethylbenzene	USEPA 8260
13	Xylenes (o,m,p)	USEPA 8260
14	Hexane	USEPA 8260
15	Heptane	USEPA 8260
16	Octane	USEPA 8260
17	1,2,4-Trimethylbenzene	USEPA 8260
18	Furan	USEPA 8260
19	Tetrahydrofuran (THF)	USEPA 8260
20	N,N-Dimethylformamide (DMF)	USEPA 1666
21	Benzene	USEPA 8260
22	Turpentine *(as alpha- & beta-Pinene)*	USEPA 8260
23	Isobutanol	USEPA 8260
24	Methyl Ethyl Ketone (MEK)	USEPA 8260
25	Methyl Isobutyl Ketone (MIBK)	USEPA 8260
26	Isopropyl ether	USEPA 8260
27	Diethyl ether	USEPA 8260
28	Dimethyl Sulphide	USEPA 8260
29	Dimethyl Sulphoxide (DMSO)	USEPA 1666

Appendix 4: Semi-Volatile Organic Compounds, SVOC (USEPA 8270E)

Compounds

PHENOLS
Phenol
2-Chlorophenol
2-Nitrophenol
2,4-Dimethylphenol
2,4-Dichlorophenol
4-Chloro-3-methylphenol
2,4,6-Trichlorophenol
2,4-Dinitrophenol
4-Nitrophenol
Tetrachlorophenol
Pentachlorophenol
Cresoles
Catechol
Resorcinol
Hydrochinone

POLYNUCLEAR AROMATICS HC
Naphthalene
2-Chloronaphthalene
Anthracene
Acenaphthylene
Acenaphthene
Fluorene
Phenanthrene
Fluoranthene
Benzo(a)anthracene
Pyrene
Chrysene
Benzo(a)pyrene
Dibenz(a,h)anthracene
Benzo(ghi)pyrene
Benzo(b)fluoranthene
Benzo(k)fluoranthrene
Indeno(123cd)pyrene

PHTHALATE ESTERS
Dimethyl phthalate
Diethyl phthalate
Di-n-butyl phthalate
Butyl Benzyl phthalate
Bis(2-ethylhexyl)phthalate
Di-n-octyl phthalate

NITROAMINES
Pyridine
N-Nitrosodi-n-propylamine
N-Nitrosodiphenylamine

CHLORINATED HYDROCARBONS
1,3-Dichlorobenzene
1,4-Dichlorobenzene
1,2-Dichlorobenzene
1,2,4-Trichlorobenzene
Tetrachlorobenzene
Pentachlorobenzene
Hexachlorobutadiene
Hexachlorocyclopentadiene
Hexachlorobenzene
Chloroanilines

POLYCHLORINATED BIPHENYLS
2,4,4'-Trichlorobiphenyl
2,2',5,5'-Tetrachlorobiphenyl
2,2',4,5,5'-Pentachlorobiphenyl
2,3',4,4',5-Pentachlorobiphenyl
2,2',3,4,4',5-Hexachlorobiphenyl
2,2',4,4',5,5'-Hexachlorobiphenyl
2,2',3,4,4',5,5'-Heptachlorobiphenyl

PESTICIDES
DDT
DDE
DDD
Aldrin
Dieldrin
Endrin
alpha-BHC
beta-BHC
gamma-BHC
delta-BHC
Endosulfan I
Endosulfan II
Endosulfan sulfate
Endrin
Endrin aldehyde
Endrin ketone
Heptachlor
Heptachlor epoxide
Methoxychlor
Carbaryl
Carbofuran
Atrazine
Maneb

Appendix 5: Metals by ICP-OES (APHA 3120B, USEPA 6010D)

Elements

1.	Silver as Ag
2.	Aluminium as Al
3.	Arsenic as As
4.	Gold as Au
5.	Boron as B
6.	Barium as Ba
7.	Beryllium as Be
8.	Bismuth as Bi
9.	Calcium as Ca
10.	Cadmium as Cd
11.	Cobalt as Co
12.	Chromium as Cr
13.	Copper as Cu
14.	Iron as Fe
15.	Gallium as Ga
16.	Mercury as Hg
17.	Indium as In
18.	Potassium as K
19.	Lithium as Li
20.	Magnesium as Mg
21.	Manganese as Mn
22.	Molybdenum as Mo

23.	Sodium as Na
24.	Niobium as Nb
25.	Nickel as Ni
26.	Phosphorus as P
27.	Lead as Pb
28.	Palladium as Pd
29.	Platinum as Pt
30.	Rhodium as Rh
31.	Antimony as Sb
32.	Selenium as Se
33.	Silicon as Si
34.	Tin as Sn
35.	Sulfur as S
36.	Strontium as Sr
37.	Tantalum as Ta
38.	Tellurium as Te
39.	Titanium as Ti
40.	Thallium as Tl
41.	Vanadium as V
42.	Tungsten as W
43.	Zinc as Zn

Appendix 6: Pesticides, PCBs, Toxaphene (USEPA 8081B, 8082A)

Test Parameter

PESTICIDES (USEPA 8081B)	PCB AROCLORS (USEPA 8082A)	TOXAPHENE (USEPA 8081B)
Aldrin	Aroclor 1016	
a-BHC	Aroclor 1221	
b-BHC	Aroclor 1232	
d-BHC	Aroclor 1242	
g-BHC (Lindane)	Aroclor 1248	
cis-Chlordane	Aroclor 1254	
Trans-Chlordane	Aroclor 1260	
Chlorpyrifos		
DDD		
DDE		
DDT		
Dieldrin		
Endrin		
Endosulfan I		
Endosulfan II		
Endosulfan Sulphate		
Endrin Aldehyde		
Heptachlor		
Heptachlor Epoxide (Isomer B)		
Methoxychlor		
Mirex		