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LABORATORY LOCATION:
(PERMANENT LABORATORY)
ALS TECHNICHEM (M) SDN. BHD. (117964-P)
WISMA ALS
No. 19 & 21, JALAN ASTAKA U8/84
SEKSYEN U8, BUKIT JELUTONG
40150 SHAH ALAM, SELANGOR
MALAYSIA
FIELDS OF TESTING:**CHEMICAL, GMO, NUCLEIC ACID & MICROBIOLOGY**

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2005 (ISO/IEC 17025:2005).

This laboratory's fulfillment 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 and calibrations. 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 (see Joint ISO-ILAC-IAF Communiqué dated April 2017).

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Sewage & Industrial Effluents/ Waste Water		
Surface Water	pH	APHA 4500-H ⁺ B
Ground Water		
Natural Water	BOD5 at 20°C	APHA 5210 B, 4500-O B, C, G
Mineral Water		
Drinking Water	COD	APHA 5220 B, C, D
Potable Water		
Raw Water	Suspended Solids	APHA 2540 D
	Chromium, Hexavalent	APHA 3500-Cr D 19 th Ed (1995) APHA 3500-Cr B 21 st Ed (2005)
	Chromium, Trivalent	In-house Method QWI-CH/17-7 based on APHA 3120 B & 3500-Cr D
	Mercury	APHA 3112 B USEPA 7470 A
	Arsenic (As)	APHA 3120 B
	Aluminium (Al)	USEPA 6010 B
	Barium (Ba)	
	Boron (B)	
	Cadmium (Cd)	
	Copper (Cu)	
	Iron (Fe)	
	Lead (Pb)	

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Sewage & Industrial Effluents/ Waste Water (continue)		
Surface Water	Manganese (Mn)	APHA 3120 B
Ground Water	Nickel (Ni)	USEPA 6010 B
Natural Water	Selenium (Se)	
Mineral Water	Silver (Ag)	
Drinking Water	Tin (Sn)	
Potable Water	Zinc (Zn)	
Raw Water (continue)	Beryllium	
	Calcium	
	Magnesium	
	Potassium	
	Sodium	
	Sulfur	
	Thallium	
	Vanadium	
	Fluoride	APHA 4500-F C, D
	Formaldehyde	In-house Method QWI-CH/17-33 based on Distillation/UV-Vis Spectrometer
	Cyanide	APHA 4500-CN- C, E
	WAD Cyanide	APHA 4500-CN- I, E
	Free Cyanide	APHA 4500-CN- C, E
	Phenol	APHA 5530 B, C, D
	Residual Chlorine (free)	APHA 4500-CI G
	Sulphide	APHA 4500-S ²⁻ C, D, F
	Oil & Grease	APHA 5520 B
	Ammonia Nitrogen	APHA 4500-NH ₃ B, C, G
	Color ADMI (pH natural)	APHA 2120 E (UV-Vis Spectrometer)
	Color ADMI (pH adjusted to 7.6)	& USEPA 110-1
Drinking Water	Bromide	APHA 4110 B
Ground Water	Chloride	
Mineral Water	Fluoride	
Potable Water	Nitrate	
Reverse Osmosis Water	Nitrite	
	Phosphate	
	Sulphate	

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Sewage & Industrial Effluents/ Waste Water (continue)		
Sea Water Ground Water Waste Water River Water Surface Water	MLSS MLVSS	In-house Method QWI-CH/17-79 based on APHA 2540 D & 2540 E
Drinking Water Potable Water Raw Water Surface Water Ground Water Sea Water Natural Water Mineral Water	Aluminium Antimony Arsenic Barium Bismuth Boron Beryllium Calcium Cadmium Chromium Cobalt Copper Gallium Indium Iron Lead Lithium Magnesium Manganese Mercury Molybdenum Nickel Potassium Phosphorus Selenium Silver Sodium Strontium Thallium Tin Tungsten Vanadium Zinc	APHA 3125 B USEPA 6020 A

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Sewage & Industrial Effluents/ Waste Water (continue) Drinking Water Potable Water Raw Water Surface Water Ground Water Natural Water Mineral Water	Sample Pre-Treatment for Metals Analysis	In-house Method QWI-CH/17-4 based on APHA 3030 E & USEPA 3005 A
	Dissolved Oxygen	APHA 4500-O B, C, G
	Color	APHA 2120 B
	Organic and Volatile Acids	APHA 5560 C
	Borate (calculated as H ₃ BO ₃)	APHA 3120 B
	Phosphorus, Total	APHA 4500-P B, F In-house Method QWI-CH/17-58 based on APHA 4500 P – B, F
	Sulphate	In-house Method QWI-CH/17-11 based on APHA 4500-SO ₄ ²⁻ E
	Chloride	APHA 4500-Cl ⁻ B, E
	Detergent, Anionic (MBAS)	In-house Method QWI-CH/17-3 based on APHA 5540 C
	Turbidity	APHA 2130 B
	Hardness (CaCO ₃)	APHA 2340 B, C
	Mineral Oil	APHA 5520 F
	Selenium	In-house Method QWI-CH/17-9 based on APHA 3120 B
	Alkalinity	APHA 2320 B
	Conductivity	APHA 2510 B
	Fixed and Volatile Solids Ignited at 550°C	APHA 2540 E
	Nitrate	APHA 4500-NO ₃ ⁻ E, H
Nitrite	APHA 4500-NO ₂ ⁻ B	
Total Kjeldahl Nitrogen	APHA 4500-N _{org} B	
Total Dissolved Solids	In-house Method QWI-CH/17-12 based on APHA 2540 C	

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Sewage & Industrial Effluents/ Waste Water (continue)		
Drinking Water Potable Water Raw Water Surface Water Ground Water Natural Water Mineral Water (continue)	Total Organic Carbon Total Solids Settleable Solids Silicon Ferrous Ion (Fe ²⁺)	APHA 5310 B, C, D USEPA 9060 APHA 2540 B APHA 2540 F APHA 4500-Si D APHA 3500-Fe D
Surface Water Sea Water	Chlorophyll Organic and Volatile Acids Total Organic Carbon Nitrate Mercury Salinity	APHA 10200 H APHA 5560 C APHA 5310 C, D APHA 4500-NO ₃ ⁻ E APHA 3112 B USEPA 7470 A APHA 2520 B
Sea Water Reverse Osmosis Water Drinking Water Ground Water Surface Water	Low Level Metals (Ag, Al, As, B, Ba, Be, Cd, Co, Cr, Cu, Fe, Hg, Mn, Mo, Ni, Pb, Sb, Se, Sn, Ti, Tl, U, V, Zn) Mercury, Total Methyl Mercury	In-house Method QWI-CH/17-31 based on Octopole Reaction Cell ICPMS USEPA 1631 E USEPA 1630
Marine Water	Tributyltin	In-house Method QWI-OG/17-30 based on USEPA 8323 (LCMSMS)
Water (Potable Water, Lake Water, Sea Water, Ground Water)	Monomethyl Arsenic Acid Arsenobeteneine DiMethylarsenic Acid Arsenious Acid As (III) Arsenic Acid As (V) Selenite Se (IV) Selenate Se (VI)	In-house Method QWI-CH/17-85 based on Speciation Analyses Handbook by LC-ICPMS

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Haemodialysis Water Reverse Osmosis Water	Calcium	APHA 3120 B
	Magnesium	
	Potassium	
	Sodium	
	Aluminium	APHA 3125 B
	Antimony	
	Arsenic	
	Barium	
	Beryllium	
	Cadmium	
Chromium		
Copper		
Lead		
Mercury		
Selenium		
Silver		
Thallium		
Zinc		
Chloramines	APHA 4500 Cl G	
Free Chlorine		
Chloride	APHA 4110 B	
Fluoride		
Nitrate		
Sulphate		
Hardness (CaCO ₃)	APHA 2340 B	
Total Dissolved Solids	In-house Method QWI-CH/17-12 based on APHA 2540 C	
pH	APHA 4500-H ⁺ B	
Sampling Protocol	In-house Method QWI-CH/17-20 based on AAMI Guideline	

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Drinking Water Ground Water Potable Water Waste Water	Purge and Trap Extraction	USEPA 5030 B
	Separatory Funnel Extraction of Liquids	USEPA 3510 C
Sea Water Ground Water Waste Water River Water Surface Water	Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	USEPA 8260 B
	Total Petroleum Hydrocarbon	USEPA 8015 B
	Volatile Organic Compound (Refer to Appendix 1)	USEPA 8260 B
	Semivolatile Organic Compound (Refer to Appendix 2)	USEPA 8270 C
Water	Ether Oxygenates (MTBE, TBA, DIPE, TAME and ETBE)	In-house Method QWI-OG/17-27 based on USEPA 5030B, 8260B
	TPH Speciation – Aliphatic Hydrocarbon >C5-C6 fraction >C6-C8 fraction >C8-C10 fraction TPH Speciation - Aromatic Hydrocarbon >C5-C7 fraction >C7-C8 fraction >C8-C10 fraction	In-house Method QWI-OG/17-29 based on TPHCWG
	TPH Speciation – Aliphatic Hydrocarbon >C10-C12 fraction >C12-C16 fraction >C16-C35 fraction TPH Speciation - Aromatic Hydrocarbon >C10-C12 fraction >C12-C16 fraction >C16-C21 fraction >C21-C35 fraction	In-house Method QWI-OG/17-28 based on TPHCWG
Sea Water Ground Water Waste Water River Water Surface Water	Perchlorate	In-house Method QWI-CH/17-80 based on USEPA 6850
	Acute Toxicity Screening	In-house Method QWI-MB/17-92 based on Microtox™ System

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soil Sediments Sludge Solid Waste	Total Organic Carbon Total Organic Matter Total Solids at 103 °C – 105 °C Moisture at 103 °C – 105 °C Oil & Grease Cyanide pH Anions (Chloride, Sulphate, Nitrite, Nitrate, Bromide, Phosphate, Fluoride) Hydrocarbon, Total	USEPA 9060 In House Method QWI-CH/17-14 based on APHA 2540 B, E In-house Method QWI-CH/17-8 based on (Oven Drying) In-house Method QWI-CH/17-8 based on (Oven Drying) USEPA 9071 B APHA 5520 APHA 4500-CN ⁻ C, E USEPA 1311 APHA 4500-H ⁺ B In-house Method QWI-CH/17-6 based on APHA 4110 B In-house Method QWI-OG/17-18 based on EPA 418.1, APHA 5520 F
Soil	Lead Cadmium Volatile Organic Compound (Refer to Appendix 4)	Determination Method: Japanese Industrial Standard Method K0102 (54.4) Method K0102 (55.4) Method K0125 (5.1) Sample Preparation Method: Japanese Ministry of Environment: Announcement 18 & 19
Soil Sludge	Acute Toxicity Screening	In house Method QWI-MB/17-92 based on Microtox™ System
Soil Sediment Sludge Solid Waste	Total Petroleum Hydrocarbon Polyaromatic Hydrocarbon (PAH) (Refer to Appendix 3 for List of PAHs) Purge and Trap Extraction Microscale Solvent Extraction of Solids	USEPA 3570 (Microscale Solvent Extraction) USEPA 5030 B In-house Method QWI-OG/17-16 based on USEPA 3570

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soil Sediments Sludge Solid Waste	Volatile Organic Compound (Refer to Appendix 1)	USEPA 8260 B
	Semivolatile Organic Compound (Refer to Appendix 2, 5, 6)	USEPA 8270 C
	BTEX (Benzene, Toluene, Ethylbenzene, Xylenes)	USEPA 8260 B
	Total Petroleum Hydrocarbon	USEPA 8015 B
Soil Sediment	Ether Oxygenates (MTBE, TBA, DIPE, TAME and ETBE)	In-house Method QWI-OG/17-27 based on USEPA 5030 B, 8260 B
	TPH Speciation – Aliphatic Hydrocarbon >C5-C6 fraction >C6-C8 fraction >C8-C10 fraction TPH Speciation - Aromatic Hydrocarbon >C5-C7 fraction >C7-C8 fraction >C8-C10 fraction	In-house Method QWI-OG/17-29 based on TPHCWG
	TPH Speciation – Aliphatic Hydrocarbon >C10-C12 fraction >C12-C16 fraction >C16-C35 fraction TPH Speciation - Aromatic Hydrocarbon >C10-C12 fraction >C12-C16 fraction >C16-C21 fraction >C21-C35 fraction	In-house Method QWI-OG/17-28 based on TPHCWG
Chemicals Metals Paints Papers Plastics	Lead Mercury Cadmium Chromium Hexavalent Chromium Polybrominated Biphenyl Polybrominated Diphenyl Ether	In-house Method QWI-CH/17-18 Based on Procedures for Determination of Levels of Regulated Substances in Electro Technical Products IEC ACEA Ad Hoc Working Group
Plastic	Cadmium	BS EN 1122:2001
	Mercury	In-house Method QWI-CH/17-18 based on USEPA 7473

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Toy Materials	Soluble Metals (Lead, Barium, Cadmium, Arsenic, Antimony, Chromium, Mercury, Selenium)	In-house Method QWI-CH/17-32 based on BSEN 71 Part 3
Food Packaging Material	Leachable Metals (Antimony, Arsenic, Cadmium, Lead)	In-house Method QWI-OF/17-42 based on Malaysian Food Act 13 th Schedule
Personal Exposure	Benzene, Toluene, Ethylbenzene, Xylenes (BTEX) Mercury Dust particulates (TSP, PM10, PM2.5) Acid Gases (H ₂ SO ₄ , HNO ₃ , HCl) Aluminium Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Molybdenum Nickel Tin Zinc Volatile Organic Compounds Fluorides	In-house Method QWI-OG/17-11 based on 3M Organic Vapor Monitor Sampling and Analysis Guide NIOSH 1501 OSHA 1005 NIOSH 6009 NIOSH 0500 NIOSH 0600 NIOSH 7903 NIOSH 7303 USEPA Method IO 3.1 (section 5) US EPA TO-17 NIOSH 2549 NIOSH 7906
Air (Charcoal Tube)	Hydrogen Sulfide	In-house Method QWI-CH/17-87 based on NIOSH 6013

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Ambient Air	Benzene, Toluene, Ethylbenzene, Xylenes (BTEX)	In-house Method QWI-OG/17-11 based on 3M Organic Vapor Monitor Sampling and Analysis Guide NIOSH 1501 OSHA 1005
	Mercury	NIOSH 6009
	Sampling and Analysis of Dust Particulates (TSP, PM10, PM2.5)	In-house Method QWI-CH/17-83 based on USEPA Method IO 1.1
	Acid Gases (H ₂ SO ₄ , HNO ₃ , HCl)	NIOSH 7903
	Sulphur Dioxide	In-house Method QWI-CH/17-36 based on J.P. Lodge 704C and J.P. Lodge 407
	Nitrogen Dioxide	In-house Method QWI-CH/17-35 based on J.P. Lodge 704C and J.P. Lodge 407
	Aluminium Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Molybdenum Nickel Tin Zinc	NIOSH 7303 USEPA Method IO 3.1 (section 5)
	Volatile Organic Compounds	US EPA TO-17 NIOSH 2549
	Fluorides	NIOSH 7906

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Blood Urine	Mercury, Total	In-house Method QWI-CH/17-23 NIOSH P&CAM 165 and P&CAM 167
	Lead, Total	In-house Method QWI-CH/17-27 based on NIOSH 8003
	Aluminium Antimony Arsenic Barium Beryllium Cadmium Calcium Chromium Cobalt Copper Iron Lead Magnesium Manganese Molybdenum Nickel Tin Zinc	In-house Method QWI-CH/17-78 based on Mutagenesis (2005)
	Methyl Mercury	In-house Method QWI-CH/17-34 based on USEPA 1630
Urine	Phenol	In-house Method QWI-OG/17-19 based on NIOSH 8305
	Cresol	
	S-Phenylmercapturic Acid (SPMA)	In-house Method QWI-CH/17-81 based on Carcinogenesis (1999)
	Monomethyl Arsenic Acid Arsenobetaine DiMethylarsenic Acid Arsenious Acid As (III) Arsenic Acid As (V) Selenite Se (IV) Selenate Se (VI)	In-house Method QWI-CH/17-85 based on Speciation Analysis Handbook by LC-ICPMS

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food	Calories (Energy)	In-house Method QWI-OF/ 17-36 based on Methods of Analysis for Nutrition Labeling (1993) Page 5 and 106
	Ash	In-house Method QWI-OF/17-2 based on Method of Analysis for Nutrition Labeling (1993) Chapter 10
	Moisture	In-house Method QWI-OF/17-7 based on Method of Analysis for Nutrition Labeling (1993) Chapter 23 In-house Method QWI-OF/17-38 Moisture Analyzer
	Water Activity	In-house Method QWI-OF/17-72 based on AOAC 978.18
	pH	In-house Method QWI-OF/17-95 based on AOAC 945.27, 970.21, 943.02 & 981.12
	Carbohydrate, Available	In-house Method QWI-OF/17-37 based on Method of Analysis for Nutritional Labeling and Malaysian Food Act 1983
	Carbohydrate, Total	In-house Method QWI-OF/17-37 based on Method of Analysis for Nutrition Labeling (1993) Page 106
	Fat, Total	In-house Method QWI-OF/17-10 based on Method of Analysis for Nutrition Labeling (1993) Chapter 18 and Pearson's (1991) Page 24
	Fat, Crude	
	Fatty Acid Composition: Monounsaturated Fat Polyunsaturated Fat Saturated Fat Trans Fatty Acid EPA (Eicosapentaenoic Acid) DHA (Docosahexaenoic Acid) Omega 3,6,9	In-house Method QWI-OF/17-15 based on AOAC Method 963.22 and AOCS Ce-1-62
	Cholesterol	In house Method QWI-OF/17-16 based on JAOAC Vol 73, No. 5, 1990 and GC – FID

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Oil Products	Lipid Composition: Monoglycerides Diglycerides	In-house Method QWI-OF/17-68 based on AOCS Cd 11b-91
Food	Protein/Total Kjeldahl Nitrogen	In-house Method QWI-OF/17-6 Based on Method of Analysis for Nutrition Labeling (1993) Chapter 28 and Pearson's (1991) Page 17 & 20)
	Fibre, Crude	In-house Method QWI-OF/17-9 Based on Pearson's (1991) Page 26-27
	Fibre, Dietary	In-house Method QWI-OF/17-14 Based on Methods AOAC 985.29
	Sugar, Total (As Inverted Sugar)	In-house Method QWI-OF/17-1 Based on AOAC 923.09 and Pearson's (1991) Page 197
	Sugar, Reducing	In house Method QWI-OF/17-67 based on AOAC 906.03B and Pearson's (1991) Page 197
	Sucrose	In-house Method QWI-OF/17- 70 based on AOAC 930.36 and Pearson's (1991) Page 197
Beverage (Cordial, Liqueurs)	Acidity, Total	AOAC 940.15
Milk & Milk Products	Fat	In-house Method QWI-OF/17-89 based on GB 5413.3
	Protein	In-house Method QWI-OF/OF/17-91 based on GB 5009.5
	Acidity	In-house Method QWI-OF/17-90 based on GB 5413.34
Milk Products	Total Milk Solid	In-house Method QWI-OF/17-77 based on Official Journal of the European Communities 79/1067/EEC
	Non Fat Milk Solid	In-house Method QWI-OF/17-78 based on Official Journal of the European Communities 79/1067/EEC

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Dairy Products, Oats	Fructan (Inulin)	In-house Method QWI-OF/17-57 based on AOAC 999.03
	Beta Glucan	AOAC 995.16
Food	Iodine	In-house Method QWI-OF/17-60 based on JAAS (1998)
	Minerals (Ca, Cu, Fe, Mg, Mn, P, K, Na, Zn)	In-house Method QWI-OF/17-41 based on AOAC 984.27 and APHA 3120 B
	Sodium Chloride (Salt)	In-house Method QWI-OF/17-24 Based on AOAC 960.29 and Pearson's Composition & Analysis of Food 9 th Ed. (1991) Pg. 14
	Sorbic Acid and Its Salt	In-house Method QWI-OF/17-12 Based on AOAC 979.08
	Benzoic Acid and Its Salt	In-house Method QWI-OF/17-13 Based on AOAC 979.08 & Pearson's (1991) Page 88-89
		In-house Method QWI-OF/17-3 Based on AOAC 979.08
	Nitrite	In-house Method QWI-OF/17-4 Based on AOAC 979.08 & Pearson's (1991) Page 85
		In-house Method QWI-OF/17-69 based on AOAC 993.30
	Caffeine	In-house Method QWI-OF/17-51 based on AOAC 960.25, AOAC 979.08
Alcohol (Ethanol)	In-house Method QWI-OF/17-71 based on AOAC 973.23	
Sulphur Dioxide/ Sulphite	In-house Method QWI-OF/17-23 Iodometric Titration Method based on Analytical Chemistry of Food 1 st Ed. (1999) Pg. 148	

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food	Vitamin A (Retinol)	In-house Method QWI-OF/17-20 based on British Standard BS EN 12823 - 1: 2000
	Vitamin A (Beta Carotene)	In house Method QWI-OF/17-65 based on AOAC 941.15
	Vitamin B1	In-house Method QWI-OF/17-18 based on AOAC Method 942.23, 970.65
	Vitamin B2	In-house Method QWI-OF/17-18 based on AOAC Method 942.23, 970.65
	Vitamin B3	In house Method QWI-OF/17-48 based on JAOAC (2002)
	Vitamin B5	In house Method QWI-OF/17-49 based on Food Chem (2000)
	Vitamin B6	In house Method QWI-OF/17-18 based on JFAC (1996)
	Vitamin B7	In-house Method QWI-OF/17-53 based on AOAC 960.46
	Vitamin B9	In-house Method QWI-OF/17-46 based on AOAC 960.46
	Vitamin B12	In-house Method QWI-OF/17-47 based on AOAC 960.46
	Vitamin C	In-house Method QWI-OF/17-8 based on AOAC 967.21
	Vitamin E	In-house Method QWI-OF/17-19 based on British Standard BS EN 12822: 2000 and HPLC
Vitamin D3	In-house Method QWI-OF/17-66 based on AOAC 995.05	

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Flour	Bromide	In-house Method QWI-OF/17-93 based on AOAC 993.30 Ion Chromatography Method
Bread & Its Products	Propionic Acid & Its Salts	In-house Method QWI-OF/17-44 based on AOAC 950.35
MSG/ Iodized Salt	Potassium Iodide	AOAC 925.56
Food	Formaldehyde	In-house Method QWI-OF/17-43 based on AOAC 931.08
	Phthalates	In-house Method QWI-OF/17-63 based on JRC EUR 23682 EN (2009)
	Metal Contaminants (As, Pb, Cu, Sn, Zn, Hg, Cd, Sb)	In-house Method QWI-OF/17-41 based on AOAC 999.11, 986.15 and APHA 3120 B, APHA 3112 B, APHA 3125B
	Organochlorine Pesticides Organophosphorus Pesticides (Refer to Appendix 5 and 6)	In-house Method QWI-OG/17-21 QuEChERS Method - Multi Residue Method & GC MS based on AOAC 2007.01
Fruit & Vegetables	Pesticide Screen	In-house Method QWI-OF/17-98 based on iMethod AB Sciex (LCMSMS)
	Carbamates Screen	In-house Method QWI-OF/17-100 based on iMethod AB Sciex (LCMSMS)
Food (Starch based Products), Powder	Maleic Acid	In-house Method QWI-OF/17-80 based on Method of Test for Total Amount of Maleic Acid and Maleic Anhydride in Foods, Department of Health, Taiwan (2013) by HPLC-DAD
Food (Fish and Fishery Products, Grain, Fruit Juice)	Monomethyl Arsenic Acid Arsenobetaine DiMethylarsenic Acid Arsenious Acid As (III) Arsenic Acid As (V) Selenite Se (IV) Selenate Se (VI)	In-house Method QWI-CH/17-85 based on Speciation Analysis Handbook by LC-ICPMS

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Seafood Products Fish Shrimp Meat	Methyl Mercury Chloramphenicol Nitrofurans AOZ, AMOZ	In-house Method QWI-CH/17-34 based on USEPA 1630 In-house Method QWI-OF/17-28 based on Bio Scientific Max Signal ELISA Method In-house Method QWI-OF/17-29 based on Bio Scientific Max Signal ELISA Method
Milk Products	Nitrofurans groups (Furaltadone, Furazolidone, Nitrofurantoin, Nitrofurazone) Aflatoxin M1	In-house Method QWI-OF/17-101 based on AB Sciex Application Note (LCMSMS) In-house Method QWI-OF/17-92 based on GB 5413.37
Peanut & Its Products Cereal and Legumes Grain (Feed)	Aflatoxins, Total Aflatoxins B1, B2, G1, G2	In-house Method QWI-OF/17-50 based on Agraquant ELISA Method In house Method QWI-OF/17-58 based on AOAC 991.31 & 990.33
Coffee, Cocoa	Ochratoxin A	In-house Method QWI-OF/17-81 based on AOAC 2000.09, AOAC 2008.02 HPLC Method
Water	Acrylamide Tetracycline, Doxycycline, Chlortetracycline & Oxytetracycline Malachite green, Iencomalachite green	In-house Method QWI-OF/17-102 based on AB Sciex Application Note (LCMSMS) In-house Method QWI-OF/17-99 based on AB Sciex Application Note (LCMSMS) In-house Method QWI-OF/17-96 based on AB Sciex Application Note (LCMSMS)
Potato based product	Acrylamide	In-house Method QWI-OF/17-126 using LCMSMS

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food, Nutraceuticals & Pharmaceutical Products	Conditioning of Stability Study	Conditioning of Stability Study
Pharmaceutical products	Uniformity of Weight	Procedure 5.2 Uniformity of Mass based on The International Pharmacopoeia 4 th edition
Tablets and Capsules	Disintegration	In-house Method QWI-OF/17-105 based on BP 2010
Health Supplement	Collagen	In-house Method QWI-OF/17-117 using LCMS
Traditional Medicine	Arsenic Cadmium Lead Mercury Copper	In-house Method QWI-OF/17-41 based on AOAC 986.15 Section D, APHA 3120 B, APHA 3112 B and APHA 3125 B
Oil	Total Polar Compound	In-house Method QWI-OF/17-73 based on AOCS Cd 20-91 and Pure Appl. Chem., Vol. 72 (2000)
Milk Powder	Melamine/ Cyanuric	In-house Method QWI-OF/17-97 based on USFDA (LCMSMS)
Soy Sauce, Oyster Sauce	Sodium Chloride (Salt)	In-house Method QWI-OF/17-83 based on AOAC 935.47
	3-MCPD	In-house Method QWI-OF/17-79 based on Food Control 18 (2007) by GCMS
Spices and Chili Sauce	Sudan Red I, II, III, IV	In-house Method QWI-OF/17-22 based on FSA (UK) (Method 145B)
	Rhodamine B, Methyl Yellow, Para Red	In-house Method QWI-OF/17-22 based on FSA (Food Standard Agencies) Method 145B
Food/ Beverage	Artificial Color (Qualitative)	In-house Method QWI-OF/17-76 based on Modern Food Analysis (1971)
Food and Feed	Protein/ Nitrogen/ Carbon Protein by calculation	In-house Method QWI-OF/17-119 based on AOAC 972.43

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Oil and Fat	Free Fatty Acids	In-house Method QWI-OF/17-121 based on AOCS Ca 5a-40
	Anisidine Value	In-house Method QWI-OF/17-122 based on AOCS Cd 18-90
	Peroxide Value	In-house Method QWI-OF/17-123 based on AOCS Cd 8-53
Water, Food, Food Ingredients	Allergen of Almond	In-house Method QWI-OF/17-107 based on ELISA Method
	Allergen of Egg	In-house Method QWI-OF/17-108 based on ELISA Method
	Allergen of Hazelnut	In-house Method QWI-OF/17-109 based on ELISA Method
	Allergen of Crustacean	In-house Method QWI-OF/17-110 based on ELISA Method
	Allergen of Sesame	In-house Method QWI-OF/17-111 based on ELISA Method
	Allergen of Mustard	In-house Method QWI-OF/17-112 based on ELISA Method
	Allergen of Walnut	In-house Method QWI-OF/17-113 based on ELISA Method
	Allergen of Pistachio	In-house Method QWI-OF/17-114 based on ELISA Method
	Allergen of Fish	In-house Method QWI-OF/17-106 based on ELISA Method
Washing Water, Allergen & Raw Material	Allergen of Soy	In-house Method QWI-OF/17-85 based on ELISA Method
	Allergen of Gluten	In-house Method QWI-OF/17-86 based on ELISA Method
	Allergen of Peanut	In-house Method QWI-OF/17-87 based on ELISA Method
	Allergen of Milk	In-house Method QWI-OF/17-86 based on ELISA Method

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Tribology Lubricant Oil Includes Petrol Engine Oil Diesel Engine & Marine Engine Oil Gas Engine Oil Hydraulic/Transmission Oil, Turbine Oil, Gear/Gearbox Oil Differential/Final Drive and Transmission Oil Refrigeration Compressor Oil, Air Compressor Oil & Grease	Metal (ICP) - Al, Cr, Cu, Fe, Pb, Sn, Si, Mg, Mo, B, Na, K, Ca, Zn, P, Ni	In-house Method QWI-WC/17-04 based on ASTM D5185 by ICP-AES
Diesel Engine, Marine Engine Oil, Gas Engine Oil	Kinematic Viscosity @ 40 °C & 100 °C	ASTM D7042
Diesel Engine & Marine Engine Oil	Flash Point	ASTM D93
Petrol Engine Oil, Gas Engine Oil, Hydraulic / Transmission Oil Turbine Oil Differential/Final Drive Transmission Oil Refrigeration Compressor Oil Air Compressor Oil	Kinematic Viscosity @ 40 °C	ASTM D7042
Gas Engine Oil, Diesel Engine & Marine Engine Oil	Total Base Number	ASTM D2896
Gas Engine Oil	Viscosity Index	ASTM D2270
Turbine Oil, Air Compressor Oil Gas Engine Oil	Total Acid Number	ASTM D664
Crude Oil, Condensate Glycol	Total Mercury	UOP 938-10

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SCOPE OF TESTING: CHEMICAL**SITE: CATEGORY I**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Stationary Air Emission	Sample and Velocity Traverses	USEPA 1
	Stack Gas Velocity Volumetric Flow Rate	USEPA 2
	Dry Molecular Weight (Oxygen and Carbon Dioxide)	USEPA 3A
	Moisture Content	USEPA 4
	Particulate Emission	USEPA 5
	Sulfur Dioxide	USEPA 6C
	Nitrogen Oxide	USEPA 7E
	Sulfuric Acid and Sulfur Dioxide	USEPA 8
	Carbon Monoxide	USEPA 10
	PCDDs and PCDF Dioxin and Furan (Sampling)	USEPA 23A
Metals Emission	USEPA 29	
Noise	Environmental Noise Level	ISO 1996

Note:

APHA - Standard Methods for the Examination of Water and Wastewater, 19th Edition (1995), 20th Edition (1998) and 21st Edition (2005)FDA - Food and Drugs Administration - Bacteriological Analytical Manual, 8th Edition (1995)AOAC - Association of Official Analytical Chemists, 16th Edition (1995)

ASTM - American Society for Testing and Material

USEPA - United States Environmental Protection Agency

OSHA - Occupational Safety Health Administration

NIOSH - National Institute of Occupational Safety and Health

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SCOPE OF TESTING: GMO & NUCLEIC ACID

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food	GMO Screening	In-house Method QWI-MB/17-94 based on ISO 21570:2005 and Real Time PCR Technology
	Porcine DNA	In-house Method QWI-MB/17-93 based on Real Time PCR Technology

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Water	Heterotrophic Plate Count/ Total Plate Count	APHA 9215 B
Waste Water Potable Water Drinking Water Industrial Water	Total Coliform Count	APHA 9221 B (Fermentation Technique) APHA 9222 B (Membrane Filtration Technique)
	Total Faecal Coliform Count	APHA 9221 E (Fermentation Technique) APHA 9222 D (Membrane Filtration Technique)
	<i>Pseudomonas aeruginosa</i>	In-house Method QWI-MB/17-55 based on APHA 9213 E
	Fecal Streptococci (Fermentation technique)	In-house Method QWI-MB/17-60 based on APHA 9230 B
	<i>Legionella spp.</i> <i>Legionella pneumophila</i>	APHA 9260J
	Total Coliform Count	In-house Method QWI-MB/17-25 based on APHA 9222B
	Total <i>Escherichia coli</i> Count	In-house Method QWI-MB/17-22 based on APHA 9222D
Drinking Water	<i>Escherichia coli</i> (Fermentation technique)	In-house Method QWI-MB/17-59 based on APHA 9221 E
	Faecal Streptococci (Membrane Filtration Technique)	In-house Method QWI-MB/17-23 based on APHA 9230 C
Reverse Osmosis Water	Total Plate Count	APHA 9215 D (Membrane Filtration Technique)
	Endotoxin	USP <85> Bacterial Endotoxins Test (Kinetic-Turbidimetric Technique)
Food Environmental Swab	<i>Salmonella spp.</i>	In-house Method QWI-MB/17-100 based on ELISA Method
Food & Food Products and Environmental Samples	<i>Salmonella spp.</i>	ISO 6579-1:2017
	<i>Enterobacteriaceae</i>	ISO 21528-2:2004

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food	<i>Shigella spp.</i>	Compendium of Methods for The Microbiological Examination of Food (Chapter 27)
	<i>Bacillus cereus</i>	FDA Chapter 14
	Aerobic Plate Count/ Total Plate Count	AOAC 990.12 (Petrifilm Method)
	Total <i>Escherichia coli</i> Count and Total Coliform Count	AOAC 991.14 (Petrifilm Method)
	Total Yeast and Mold Count	AOAC 997.02 (Petrifilm Method)
Food and Food Related Products	<i>Enterobacter sakazakii</i>	In-house Method QWI-MB/17-51 based on ISO/TS 22964 (2005)
	<i>Listeria spp.</i> <i>Listeria monocytogenes</i>	In-house Method QWI-MB/17-69 based on FDA Chapter 10
	<i>Salmonella spp.</i>	In-house Method QWI-MB/17-98 based on AOAC 2013.09 (Molecular Detection System)
	Total <i>Enterobacteriaceae</i> Count	AOAC 2003.01 (Petrifilm Method)
	<i>Staphylococcus aureus</i>	In-house Method QWI-MB/17-73 based on DIN EN ISO 6888-1 and 6888-2 (1999)
	<i>Bacillus cereus</i>	In-house Method QWI-MB/17-74 based on ISO 7932 (1993)
	<i>Clostridium perfringens</i>	In-house Method QWI-MB/17-75 based on CEN 13401(1999)
	<i>Enterobacteriaceae</i>	In-house Method QWI-MB/17-76 based on ISO 8523 (1991)
	Total <i>Escherichia coli</i> Count	In-house Method QWI-MB/17-77 based on ISO 8523 (1991), ISO 4831(1991), ISO 7251 (1993)
Aerobic Mesophilic Count	ISO 4833-1:2013	

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food and Toiletries	Total Plate Count <i>Staphylococcus aureus</i> Total Coliform Count Total <i>Escherichia coli</i> Count Total Yeast and Mold Count <i>Salmonella spp.</i>	FDA Bacteriological Analytical Manual (1995); Chapter 3 FDA Bacteriological Analytical Manual (1995); Chapter 12 FDA Bacteriological Analytical Manual (1995); Chapter 4 FDA Bacteriological Analytical Manual (1995); Chapter 18 FDA Bacteriological Analytical Manual (1995); Chapter 5
Pharmaceutical Products/ Traditional Medicines/ Toiletries	Total Aerobic Microbial Count Total Yeast and Mold Count <i>Candida albicans</i> Bile Tolerant Gram Negative Bacteria <i>Escherichia coli</i> <i>Staphylococcus aureus</i> <i>Pseudomonas aeruginosa</i> <i>Salmonella spp.</i>	BP 2015
Medical Devices	Sterility Test Biological Indicator Sterility Test Bioburden Test Endotoxin	ISO 11737:1995 Part 2 (A 5.2) In-house Method QWI-MB/17-70 ISO 11737:1995 Part 1 (A 4.6.2 & 4.6.3) USP <85> Bacterial Endotoxins Test (Kinetic-Turbidimetric Technique)

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Air (Environmental Air Sampling)	Bioaerosol Test: Total Plate Count Total Yeast and Mold Count	In-house Method QWI-MB/17-7 based on NIOSH Manual Analytical Method, Method 0800, 4 th Ed. (1995)
	Settle Plate Test: Total Plate Count Total Yeast and Mold Count Coliform <i>E. coli</i>	In-house Method QWI-MB/17-80 based on Compendium of Methods for Microbiological Examination of Foods, Chapter 3, 4 th Ed.(2000)
Surface, Equipment and Personnel Hand	Swab Test: Total Plate Count Total Yeast and Mold Count Coliform Count <i>E. coli</i> Count <i>Staphylococcus aureus</i> <i>Enterobacteriaceae</i> <i>Salmonella spp.</i> <i>Enterobacter sakazakii</i> <i>Listeria spp.</i> <i>Listeria monocytogenes</i>	In-house Method QWI-MB17-81 based on Compendium of Methods for Microbiological Examination of Foods, Chapter 3, 4 th Ed.(2001)
Surface ATP Swab	ATP	In-house Method QWI-MB/17-109 based on 3M Clean-Trace Surface ATP Swab Technique

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APPENDIX 1**TABLE 1: VOLATILE ORGANIC COMPOUND (VOC)**

1. 1,1,1,2-Tetrachloroethane	36. Chloroethane
2. 1,1,1-Trichloroethane	37. Chloroform
3. 1,1,2,2-Tetrachloroethane	38. Chloromethane
4. 1,1,2-Trichloroethane	39. cis-1,3-Dichloropropylene
5. 1,1-Dichloroethane	40. cis-1,4-Dichloro-2-butene
6. 1,1-Dichloroethene	41. Dibromochloromethene
7. 1,1-Dichloropropylene	42. 1,2 - Dibromomethane
8. 1,2,3-Trichlorobenzene	43. Dichlorodifluoromethane
9. 1,2,3-Trichloropropane	44. Ethylbenzene
10. 1,2,4-Trichlorobenzene	45. Hexachlorobutadiene
11. 1,2,4-Trimethylbenzene	46. Iodomethane
12. 1,2-Dibromo-3-chloropropane	47. Isopropylbenzene
13. 1,2-Dibromoethane	48. meta- & para-Xylene
14. 1,2-Dichlorobenzene	49. Methylene chloride
15. 1,2-Dichloroethane	50. Naphtalene
16. 1,2-Dichloropropane	51. N-Butylbenzene
17. 1,3,5-Trimethylbenzene	52. n-Propylbenzene
18. 1,3-Dichlorobenzene	53. ortho-Xylene
19. 1,3-Dichloropropane	54. Pentachloroethane
20. 1,4-Dichlorobenzene	55. P-Isopropyltoluene
21. 2,2-Dichloropropane	56. sec-Butylbenzene
22. 2-Butanone (MEK)	57. Styrene
23. 2-Chlorotoluene	58. Tert-Butylbenzene
24. 2-Hexanone (MBK)	59. Tetrachloroethene
25. 2-Propanone (Acetone)	60. Toluene
26. 4-Chlorotoluene	61. Trans-1,2-Dichloroethene
27. 4-Methyl-2-pentanone (MIBK)	62. trans-1,3-Dichloropropylene
28. Benzene	63. trans-1,4-Dichloro-2-butene
29. Bromobenzene	64. Trichloroethene
30. Bromodichloromethane	65. Trichlorofluoromethane
31. Bromoform	66. Vinyl acetate
32. Bromomethane	67. Vinyl chloride
33. Carbon disulfide	68. cis-1,2-Dichloroethene
34. Carbon tetrachloride	69. Methyl-t-butyl ether
35. Chlorobenzene	

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1. 1,2-Dichlorobenzene	48. Bis (2-ethylhexyl) phthalate	97. N-Nitrosodibutylamine
2. 1,2,4-Trichlorobenzene	49. Butyl benzyl phthalate	98. N-Nitrosodiethylamine
3. 1,3,5-Trinitrobenzene	50. Carbazole	99. N-Nitrosodi-n-propylamine
4. 1,3-Dichlorobenzene	51. Chlorfenvinphos-E	100. N-Nitrosomethylethylamine
5. 1,4-Dichlorobenzene	52. Chlorfenvinphos-Z	101. N-Nitrosomorpholine
6. 1-Naphthylamine	53. Chlorobenzilate	102. N-Nitrosopiperidine
7. 2,4,5-Trichlorophenol	54. Chlorpyrifos	103. N-Nitrosopyrrolidine
8. 2,4,6-Trichlorophenol	55. Chlorpyrifos methyl	104. p,p'-DDD
9. 2,4-Dichlorophenol	56. Chrysene	105. p,p'-DDE
10. 2,4-Dimethylphenol	57. cis-Isosafrole	106. p,p'-DDT
11. 2,4-Dinitrotoluene	58. delta-BHC	107. Pentachlorobenzene
12. 2,6-Dichlorophenol	59. Diallate	108. Pentachloronitrobenzene
13. 2,6-Dinitrotoluene	60. Diazinon	109. Pentachlorophenol
14. 2-Chloronaphthalene	61. Dibenz (a,h) anthracene	110. Phenacetin
15. 2-Chlorophenol	62. Dibenzofuran	111. Phenanthrene
16. 2-Methylnaphthalene	63. Dichlorvos	112. Phenol
17. 2-Methylphenol	64. Dieldrin	113. Pirimphos ethyl
18. 2-Nitroaniline	65. Diethyl phthalate	114. Pronamide
19. 2-Nitrophenol	66. Dimethoate	115. Prothiofos
20. 2-Picoline	67. Dimethyl phthalate	116. Pyrene
21. 3,3' Dichlorobenzidine	68. Dimethylaminoazobenzene	117. Safrole
22. 3-Methylchloanthrene	69. Di-n-butyl phthalate	118. trans-isosafrole
23. 3-Nitroaniline	70. Di-n-octyl phthalate	119. 2-Chlorobiphenyl
24. 4-Aminobiphenyl	71. Diphenylamine & N-Nitrosodiphenylamine	120. 3,3'-Dichlorobiphenyl
25. 4-Bromophenyl phenyl ether	72. Endosulfan 1	121. 2,4,5-Trichlorobiphenyl
26. 4-Chloro-3-methylphenol	73. Endosulfan 2	122. 2,2',4,4'-Tetrachlorobiphenyl
27. 4-Chloroaniline	74. Endosulfan sulfate	123. 2,3',4,5',6'-Pentachlorobiphenyl
28. 4-Chlorophenyl phenyl ether	75. Endrin	124. 2,2',3,3',6,6'-Hexachlorobiphenyl
29. 4-Nitroaniline	76. Ethion	125. 2,2',3,4,5,5',6'-Heptachlorobiphenyl
30. 4-Nitroquinoline-N-oxide	77. Fenthion	126. 2,2',3,3',4,4',5,5'-Octachlorobiphenyl
31. 5-Nitro-o-toluidine	78. Fluoranthrene	127. 2,2',3,3',4,4',5,5',6'-Nonachlorobiphenyl
32. 7,12-Dimethyl benz (a) anthracene	79. Fluorene	128. 2,2',3,3',4,4',5,5',6,6'-Decachlorobiphenyl
33. Acenaphthylene	80. gamma-BHC	129. 3&4 Methylphenol
34. Acenaphthene	81. Heptachlor	
35. Acetophenone	82. Heptachlor epoxide	
36. Aldrin	83. Hexachlorobenzene	
37. alpha-BHC	84. Hexachlorobutadiene	
38. Aniline	85. Hexachlorocyclopentadiene	
39. Anthracene	86. Hexachloroethane	
40. Azobenzene	87. Hexachloropropylene	
41. Benz (a) anthracene	88. Indeno (1,2,3-cd) pyrene	
42. Benzo (a) pyrene	89. Isophorone	
43. Benzo (b) & (k) fluoroanthene	90. Malathion	
44. Benzo (g,h,i) perylene	91. Methanesulfonate ethyl	
45. beta BHC	92. Methanesulfonate methyl	
46. Bis (2-chloroethyl) ether	93. Methapyrilene	
47. Bis (2-chloroethoxy) methane	94. N-2-Fluorenylacetamide	
	95. Naphthalene	
	96. Nitrobenzene	

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APPENDIX 3**TABLE 3: POLYAROMATIC HYDROCARBONS (PAHs)**

1. 2 - Chloronaphthalene
2. 2 - Methyl naphthalene
3. 3 - Methyl chloanthrene
4. 7, 12 - Dimethyl benz (a) anthracene
5. Acenaphthylene
6. Acenaphthene
7. Anthracene
8. Benz (a) anthracene
9. Benzo (a) pyrene
10. Benzo (b) & (k) fluoroanthene
11. Benzo (g, h, i) perylene
12. Chrysene
13. Dibenz (a,h) anthracene
14. Fluoranthrene
15. Fluorene
16. Indeno (1, 2, 3 - cd) pyrene
17. N -2 - Fluorenylacetamide
18. Naphthalene
19. Phenanthrene
20. Pyrene

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APPENDIX 4**TABLE 4: VOLATILE ORGANIC COMPOUND (VOC)**

1. 1, 1, 1 - Trichloroethane
2. 1, 1, 2 - Trichloroethane
3. Trans - 1, 2 - Dichloroethene
4. cis - 1, 2 - Dichloroethene
5. cis - 1, 3 - Dichloro - 1 - propene
6. 1, 1 - Dichloroethane
7. 1, 2 - Dimethylbenzene (o - xylene)
8. 1, 2 - Dichloroethane
9. 1, 2 - Dichloropropane
10. 1, 3 - Dimethylbenzene (m - xylene)
11. 1, 4 - Dimethylbenzene (p - xylene)
12. 1, 4 - Dichlorobenzene
13. Benzene
14. Bromodichloromethane
15. Bromoform
16. Carbon tetrachloride
17. Chloroform
18. Dibromochloromethane
19. Dichloromethane
20. Tetrachloroethene
21. Toluene
22. Trichloroethene

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APPENDIX 5**TABLE 5: ORGANOCHLORINE PESTICIDES**

1. a-BHC
2. HCB
3. β -& γ -BHC
4. d-BHC
5. Heptachlor
6. Aldrin
7. Heptachlor epoxide
8. Chlordane-trans
9. Endosulfan 1
10. Chlordane-cis
11. Dieldrin
12. DDE
13. Endrin
14. Endosulfan 2
15. DDD
16. Endrin aldehyde
17. Endosulfan sulfate
18. DDT
19. Endrin ketone
20. Methoxychlor

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APPENDIX 6**TABLE 6: ORGANOPHOSPHORUS PESTICIDES**

1. Dichlorvos
2. Demeton-S-methyl
3. Monocrotophos
4. Dimethoate
5. Diazinon
6. Chlorpyrifos-methyl
7. Parathion-methyl
8. Malathion
9. Fenthion
10. Chlorpyrifos
11. Parathion
12. Pirimphos-ethyl
13. Chlorfenvinphos E
14. Chlorfenvinphos Z
15. Bromophos-ethyl
16. Fenamiphos
17. Prothiofos
18. Ethion
19. Carbofenthion
20. Azinphos-methyl
21. Simazine
22. Atrazine
23. Cypermethrins

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APPENDIX 7**TABLE 7: PESTICIDES LIST**

1	3-Hydroxycarbofuran	44	Cyproconazole (isomer)	87	Fluquinconazole
2	Acephate	45	Cyprodinil	88	Flusilazole
3	Acetamiprid	46	Desmedipham	89	Flutolanil
4	Acibenzolar-S-methyl	47	Diclobutrazol	90	Flutriafol
5	Alanycarb	48	Diclotophos	91	Forchlorfenuron
6	Aldicarb	49	Diethofencarb	92	Formetanate
7	Aldicarb-sulfoxide	50	Difenoconazole	93	Fuberidazole
8	Aldoxycarb	51	Difenoconazole (isomer)	94	Furalaxyl
9	Ametryn	52	Diflubenzuron	95	Furathiocarb
10	Aminocarb	53	Dimethoate	96	Halofenozide
11	Amitraz	54	Dimethomorph	97	Hexaconazole
12	Azoxystrobin	55	Dimoxystrobin	98	Hexaflumuron
13	Benalaxyl	56	Diniconazole	99	Hexythiazox
14	Bendiocarb	57	Dinotefuran	100	Hydramethylnon
15	Benfuracarb	58	Dioxacarb	101	Imazalil
16	Benzoximate	59	Diuron	102	Imidacloprid
17	Bifenazate	60	Emamectin B1a	103	Indoxacarb
18	Bitertanol	61	Emamectin B1b	104	Ipconazole
19	Boscalid	62	Epoxiconazole	105	lprovalicarb
20	Bromuconazole-cis	63	Etaconazole	106	Isoprocab
21	Bromuconazole-trans	64	Ethiofencarb	107	Isoproturon
22	Bupirimate	65	Ethiprole	108	Isoxaflutole
23	Buprofezin	66	Ethirimol	109	Kresoxim-methyl
24	Butafenacil	67	Ethofumesate	110	Linuron
25	Butoxycarboxim	68	Etoxazole	111	Lufenuron
26	Carbaryl	69	Famoxadone	112	Mandipropamid
27	Carbendazim	70	Fenamidone	113	Mefenacet
28	Carbetamide	71	Fenarimol	114	Mepanipyrim
29	Carbofuran	72	Fenazaquin	115	Mepronil
30	Carboxin	73	Fenbuconazole	116	Mesotrione
31	Carfentrazone-ethyl	74	Fenhexamid	117	Metaflumizone
32	Chlorantraniliprole	75	Fenobucarb	118	Metalaxyl
33	Chlorfluazuron	76	Fenoxycarb	119	Metconazole
34	Chlorotoluron	77	Fenpropimorph	120	Methabenzthiazuron
35	Chloroxuron	78	Fenpyroximate	121	Methamidophos
36	Clethodim E	79	Fenuron	122	Methiocarb
37	Clethodim Z	80	Fipronil	123	Methomyl
38	Clofentezine	81	Flonicamid	124	Methoprotryne
39	Clothianidin	82	Fludioxonil	125	Methoxyfenozide
40	Cyazofamid	83	Flufenacet	126	Metobromuron
41	Cycluron	84	Flufenoxuron	127	Metribuzin
42	Cymoxanil	85	Fluometuron	128	Mevinphos E
43	Cyproconazole	86	Fluoxastrobin	129	Mevinphos Z

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TABLE 7: PESTICIDES LIST (continue)

130	Mexacarbate	173	Spiromesifen
131	Monocrotophos	174	Spirotetramat
132	Monolinuron	175	Spiroxamine
133	Myclobutanil	176	Spiroxamine (isomer)
134	Neburon	177	Sulfentrazone
135	Nitenpyram	178	Tebuconazole
136	Novaluron	179	Tebufenozide
137	Nuarimol	180	Tebufenpyrad
138	Omethoate	181	Tebuthiuron
139	Oxadixyl	182	Teflubenzuron
140	Oxamyl	183	Temephos
141	Paclobutrazol	184	Terbuteton
142	Penconazole	185	Terbutryn
143	Pencycuron	186	Tetraconazole
144	Phenmedipham	187	Thiabendazole
145	Picoxystrobin	188	Thiacloprid
146	Piperonyl-butoxide	189	Thiamethoxam
147	Pirimicarb	190	Thidiazuron
148	Prochloraz	191	Thiobencarb
149	Promecarb	192	Thiofanox
150	Prometon	193	Thiophanate-methyl
151	Prometryne	194	Triadimefon
152	Propamocarb	195	Triadimenol
153	Propargite	196	Trichlorfon
154	Propham	197	Tricyclazole
155	Propiconazole	198	Trifloxystrobin
156	Propoxur	199	Triflumizole
157	Pymetrozine	200	Triflumuron
158	Pyracarbolid	201	Triticonazole
159	Pyraclostrobin	202	Vamidothion
160	Pyridaben	203	Zoxamide
161	Pyrimethanil	204	Avermectin B1a
162	Pyriproxyfen	205	Avermectin B1b
163	Quinoxyfen	206	Doramectin
164	Rotenone	207	Ivermectin B1a
165	Secbumeton	208	Ivermectin B1b
166	Siduron	209	Moxidectin
167	Simetryn	210	Eprinomectin B1a
168	Spinetoram A	211	Eprinomectin B1b
169	Spinetoram B	212	Cyromazine
170	Spinosyn A		
171	Spinosyn D		
172	Spirodiclofen		