

NO: SAMM 127

Issue 02, 20 August 2024 replacement of SAMM 127 dated 07 November 2023)

LABORATORY LOCATION:
(PERMANENT LABORATORY)



PERMULAB SDN. BHD.
A-G-16 MERCHANT SQUARE @ TROPICANA
JALAN TROPICANA SELATAN 1, PJU 3
47410 PETALING JAYA
SELANGOR
MALAYSIA

FIELDS OF TESTING: CHEMICAL, MECHANICAL, MICROBIOLOGY & NUCLEIC ACID

This laboratory has demonstrated its technical competence to operate in accordance with MS ISO/IEC 17025:2017 (ISO/IEC 17025:2017).

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
Water River Water Drinking Water Well Water Ground Water Effluent Waste Water Swimming Pool Water Cooling Tower Water Boiler Water Mineral Water Surface Water Raw Water Potable Water	pH Colour Turbidity Conductivity Temperature Total Dissolved Solids Total Suspended Solids Total Solids Total Alkalinity as CaCO ₃ Phenolphthalein Alkalinity as CaCO ₃ Caustic Alkalinity as CaCO ₃ Carbonate Alkalinity as CaCO ₃ Bicarbonate Alkalinity as CaCO ₃ Total Hardness as CaCO ₃ Carbonate Hardness as CaCO ₃ Non Carbonate Hardness as CaCO ₃ Biochemical Oxygen Demand @ 20°C for 5 Days Chemical Oxygen Demand Chloride as Cl Anionic Detergent MBAS Ammoniacal Nitrogen as N Nitrate Nitrogen as N Nitrite Nitrogen as N Nitrogen (Organic) as N	APHA - 4500-H B APHA - 2120B APHA - 2130B APHA - 2510B APHA - 2550B APHA - 2540C APHA - 2540D APHA - 2540B APHA - 2320B APHA - 2320B APHA - 2320B APHA - 2320B APHA - 2340C APHA - 2340A&C & 2320B APHA - 2340A&C & 2320B APHA - 5210B & APHA - 4500O-C or G APHA - 5220B or APHA - 5220C APHA - 4500CI-B APHA - 5540C APHA - 4500NH ₃ -B&C or B&F APHA - 418E*or APHA - 4500NO ₃ ⁻ D APHA - 4500NO ₂ ⁻ B APHA - 4500Norg B

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
1) River Water Drinking Water Well Water Ground Water Effluent Waste Water Swimming Pool Water Cooling Tower Water Boiler Water Mineral Water Surface Water Raw Water Potable Water (continue)	Total Nitrogen (Kjeldahl) as N Total Nitrogen as N Fluoride as F Mercury as Hg Arsenic as As Cyanide as Cn Aluminium as Al Dissolved Oxygen Silica as SiO ₂ Orthophosphorous as P / Total Phosphorous as P Iron as Fe ²⁺ Chromium, 6+ Chromium, 3+ Sulphate as SO ₄ Phenol Boron as B Free Chlorine as Cl ₂ Combined Chlorine as Cl ₂ (Monochloroamine and Dichloroamine) Total Chlorine as Cl ₂	APHA - 4500Norg B APHA - 4500Norg B & APHA - 418E* or APHA - 4500NO ₃ ⁻ D APHA - 4500F-B&D APHA - 4500F-B&C APHA - 3112B In-House No W68 (Based on APHA - 3114C) (AAS) APHA - 4500CN-C&D or C&F APHA - 3500Al-B APHA - 4500O-C or G APHA - 4500Si-C APHA - 4500P-D APHA - 3500FeB APHA - 3500CrB In-House No. W 26 APHA - 4500SO ₄ -E APHA - 5530D or APHA - 5530B&C APHA - 4500B-C APHA - 4500Cl-G APHA - 4500Cl-G APHA - 4500Cl-G
Drinking Water/Treated Water	Phenol	In House No. G39 based on EPA 525.3 ,2012

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
River Water Drinking Water Well Water Ground Water Effluent Waste Water Swimming Pool Water Cooling Tower Water Boiler Water Mineral Water Surface Water Raw Water Potable Water (continue)	Sulphide Oil & Grease Lignin & Tannin Metals: Antimony as Sb Beryllium as Be Cadmium as Cd Calcium as Ca Chromium as Cr Cobalt as Co Copper as Cu Iron as Fe Lead as Pb Lithium as Li Magnesium as Mg Manganese as Mn Molybdenum as Mo Nickel as Ni Selenium as Se Strontium as Sr Thallium as Tl Tin as Sn Titanium as Ti Vanadium as V Zinc as Zn Sodium as Na Potassium as K Barium as Ba Scandium as Sc Silver as Ag Boron as B Aluminium as Al Phosphorus as P	APHA - 4500S-F APHA - 5520B or APHA - 5520D APHA - 5503B USEPA Method 6010D; Inductive Coupled Plasma Optical Emission Spectroscopy (ICP OES) APHA - 3030E&F (HNO ₃ or HNO ₃ - HCl Digestion)
River Water Drinking Water Well/Ground Water Treated	Arsenic	In-House No. 126 (Based on Application Note 5991-6631EN)
Final Discharge Raw Waste Water Swimming Pool Water Cooling Tower Water Boiler Water Mineral Water	Mercury	In-House No. 127 (Based on Application Note 5991-6631EN)

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
River Water Treated Water Drinking Water Well Water Ground Water	Nickel as Ni Potassium as K Selenium as Se Silver as Ag Sodium as Na Thallium as Tl Thorium as Th Uranium as U Vanadium as V Zinc as Zn Iron as Fe Tin as Sn Boron as B	USEPA 200.8(ICPMS)
Sea Water, Marine Water, Salt Water	Metals; Copper as Cu Cadmium as Cd Arsenic as As Mercury as Hg Chromium as Cr Lead as Pb Zinc as Zn Aluminium as Al	Inhouse No W117 USEPA 200.8(ICPMS)
River Water Drinking Water Well Water Ground Water Effluent Waste Water Swimming Pool Water Cooling Tower Water Boiler Water Mineral Water Surface Water Raw Water Portable Water (continue)	Anions: Fluoride as F Chloride as Cl Nitrite as NO ₂ Sulphate as SO ₄ Bromide as Br Nitrate as NO ₃ Phosphate as PO ₄ Formaldehyde Formaldehyde Color Total Hydrocarbon Mineral Oil	APHA - 4110 B; Ion Chromatography with Chemical Suppression of Eluent Conductivity: In-House No. W97 HACH Method 8110 EPA 554 (HPLC) APHA 2120 F APHA 5520D&F
River Water Drinking Water Well/Ground Water Treated Water Mineral Water Potable Water Dialysis Water Reverse Osmosis Water	Bromate as BrO ₃ Chlorite as ClO ₂ Chlorate as ClO ₃	APHA 4110D APHA 4110D APHA 4110D

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Cooling Tower Water, Chilled Water	Molybdenum as Mo	HACH Method 8036
River Water Treated Water Drinking Water Well Water Ground Water	Trihalomethanes: Chloroform Dichlorobromomethane Dibromochloromethane Bromoform Volatile Organic Compounds (Refer to Appendix 1) Total Biocides Dichlobenil Desethylatrazine Desethyl Terbutylazine Hexachlorobenzene Simazine Atrazine Lindane Terbutylazine Metribuzine Parathion-methyl Heptachlor Terbutryn Metolachlor Aldrin Parathion-ethyl Pendimethalin Heptachlor epoxide Triclosan Endosulfan I Dieldrin Endosulfan II Carfentrazone-ethyl pp-DDT Diflufenican Mefenpyr-diethyl Methoxychlor	APHA - 6200 B (GCMS) USEPA 8260 D(GCMS) USEPA 5030C In House No. G39 based on EPA 525.3, 2012
River Water Treated Water Drinking Water	Epichlorohydrin	In House No. G35 based on EPA 8260D,2017
Effluent, Waste Water	Fixed & Volatile Solids Ignited at 550°C (MLVSS, MLSS)	APHA - 2540E

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring Sludge, Solid Waste, Soil	Moisture	(i) Gravimetric Method: BS:EN 12880:2000 (ii) Moisture Analyzer: In-House No. W9
	Loss on Ignition	BS:EN 12879:2000
	Mercury as Hg	USEPA 7471B
	Heavy Metals	USEPA 3050B
	Sample Preparation	USEPA 6010D (ICP OES)
	Metals	
	Silver as Ag	
	Aluminium as Al	
	Arsenic as As	
	Boron as B	
	Beryllium as Be	
	Barium as Ba	
	Cadmium as Cd	
	Calcium as Ca	
	Chromium as Cr	
	Cobalt as Co	
	Copper as Cu	
	Iron as Fe	
	Lead as Pb	
	Magnesium as Mg	
	Manganese as Mn	
	Molybdenum as Mo	
	Nickel as Ni	
	Potassium as K	
	Sodium as Na	
	Thallium as Tl	
	Vanadium as V	
	Titanium as Ti	
	Zinc as Zn	
	Lithium as Li	
	Antimony as Sb	
	Selenium as Se	
	Total Phosphorus as P	
	Tin as Sn	
	Strontium as Sr	
	Chromium Hexavalent	USEPA 3060A
	Alkaline Digestion	APHA 3500 Cr B

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Soil	Chloride	MS 678: Part VI to IX:1980 & APHA 4500-Cl-B
	Total Organic Carbon	MS 678: Part I to V:1980
Sludge	Total Nitrogen	ISO 11261:1995
	Dry Matter and Water Content on a mass basis	ISO 11465:1993
Solids Waste	Heavy Metals	
Soil	Sample Preparation	USEPA 3050B,1996
Sediment	Metals	USEPA 6020,2014 (ICP MS)
	Silver as Ag	
	Aluminium as Al	
	Arsenic as As	
	Boron as B	
	Barium as Ba	
	Beryllium as Be	
	Calcium as Ca	
	Cadmium as Cd	
	Cobalt as Co	
	Chromium as Cr	
	Copper as Cu	
	Iron as Fe	
	Mercury as Hg	
	Potassium as K	
	Magnesium as Mg	
	Manganese as Mn	
	Molybdenum as Mo	
	Sodium as Na	
	Nickel as Ni	
	Lead as Pb	
	Antimony as Sb	
	Selenium as Se	
	Tin as Sn	
	Thorium as Th	
	Thallium as Tl	
	Uranium as U	
	Vanadium as V	
	Zinc as Zn	

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Sediment	Heavy Metals Sample Preparation Metals Silver as Ag Aluminium as Al Arsenic as As Boron as B Beryllium as Be Barium as Ba Cadmium as Cd Calcium as Ca Chromium as Cr Cobalt as Co Copper as Cu Iron as Fe Lead as Pb Magnesium as Mg Manganese as Mn Molybdenum as Mo Nickel as Ni Potassium as K Sodium as Na Thallium as Tl Vanadium as V Titanium as Ti Zinc as Zn Lithium as Li Antimony as Sb Selenium as Se Total Phosphorus as P Tin as Sn Strontium as Sr	USEPA 3050B,1996 USEPA 6010D (ICP OES),2018

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Drinking water Raw water Treated water River water Ground water	Organophosphorus Pesticides Thionazin Sulfotep Phorate Dimethoate Parathion Methyl Parathion Disulfoton Famphur Chlorpyrifos Herbicides Metolachlor Simazine Atrazine Alachlor Ametryn Bentazone Napropamide Molinate Insecticides Permethrin Amitraz	In-House No. G11 based on EPA 525.3 (GCMS) EPA 525.3 (GCMS) EPA 525.3 (GCMS) EPA 525.3 (GCMS) In-House No. G11 based on EPA 525.3
Drinking water Raw water Treated water River water Ground water	Organochlorine Pesticides Hexachlorobenzene Alpha-lindane Beta-lindane Gamma-lindane Delta-lindane Heptachlor Aldrin Heptachlor Epoxide Chlordane Endosulfan I Dieldrin Endrin Endosulfan II Endosulfan Sulfate Methoxychlor pp-DDD, pp-DDE & pp-DDT Endosulfan	EPA 525.3 (GCMS)

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Marine Water	<p>Organophosphorus Pesticides Thionazin Sulfotep Phorate Dimethoate Parathion</p> <p>Methyl Parathion Disulfoton Famphur Chlorpyrifos</p> <p>Herbicides Metolachlor Simazine Atrazine Alachlor Ametryn Bentazone Napropamide Molinate</p> <p>Insecticides Permethrin Amitraz</p> <p>Organochlorine Pesticides Hexachlorobenzene Alpha-lindane Beta-lindane Gamma-lindane Delta-lindane Heptachlor Aldrin Heptachlor Epoxide Chlordane Endosulfan I Dieldrin Endrin Endosulfan II Endosulfan Sulfate Methoxychlor pp-DDD, pp-DDE & pp-DDT Endosulfan</p>	In-House No. G11 based on EPA 525.3 (GCMS)

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Drinking Water Treated Water Well Water River Water Ground Water Marine Water	Polychlorobiphenyls(PCB) 2-Chlorobiphenyl 4-Chlorobiphenyl 2,4'-Dichlorobiphenyl 2,2',5-Trichlorobiphenyl 2,4,4'-Trichlorobiphenyl 2,2',5,5'-Tetrachlorobiphenyl 2,2,3,5'-Tetrachlorobiphenyl 2,3',4',5-Tetrachlorobiphenyl 2,3,3',4',6-Pentachlorobiphenyl 2,2',3,4,4',5-Hexachlorobiphenyl 2,3',4,4',5-Pentachlorobiphenyl 2,2',4,4',5,5'-Hexachlorobiphenyl 2,2',3,4',5',6-Hexachlorobiphenyl 2,2',3,4,4',5,5'-Heptachlorobiphenyl	In-House No. G2 based on EPA 525.3(GCMS)
Dialysis Water Reverse Osmosis Water	Total Hardness as CaCO ₃ Total Chlorine Anions: Fluoride as F Chloride as Cl Nitrite as NO ₂ Nitrate as NO ₃ Sulphate as SO ₄ Bromide as Br Phosphate as PO ₄ Metals: Aluminium as As Antimony as Sb Arsenic as As Barium as Ba Beryllium as Be Boron as B Cadmium as Cd Calcium as Ca Chromium as Cr Cobalt as Co Copper as Cu Iron as Fe Lead as Pb Manganese as Mn Magnesium as Mg Mercury as Hg Molybdenum as Mo Nickel as Ni Potassium as K Selenium as Se Silver as Ag Sodium as Na Thallium as Tl Thorium as Th Tin as Sn Uranium as U Vanadium as V Zinc as Zn	APHA 2340B APHA 4500Cl-G APHA 4110B (Ion Chromatography with Chemical Suppression of Eluent Conductivity) USEPA 200.8 (ICPMS)

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Drinking Water Treated Water Well Water River Water Ground Water Marine Water	2,4-D (2,4 Dichlorophenoxy Acetic Acid) Silvex 2,4,5 TP (2,4,5- Trichlorophenoxypropionic Acid) 2,4,5-T (2,4,5-Trichlorophenoxy Acetic Acid) Total Petroleum Hydrocarbon (TPH) Aliphatic Hydrocarbon Fractions nC8 to nC12 n-Octane n-Nonane n-Decane n-Undecane n-Dodecane nC13 to nC28 n-Triadecane n-Tetradecane n-Pentadecane n-Hexadecane n-Heptadecane Pristane n-Octadecane Phytane n-Nonadecane n-Eicosane n-Docosane n-Heneicosane n-Tricosane n-Tetracosane n-Pentacosane n-Hexacosane n-Heptacosane n-Octacosane	In- House No.FH 09 Based on Department of Analytical Chemistry, Chemical Faculty Gdansk University of Technology (HPLC) TNRCC 1005,Rev 03,2001 (GCFID)

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Drinking Water Treated Water Well Water River Water Ground Water Marine Water	nC29 to nC35 n-Nonacosane n-Triacontane n-Hentriacontane n-Dotriacontane n-Tritriacontane n-Tetratriacontane n-Pentatriacontane nC36 to nC40 n-Hexatriacontane n-Heptatriacontane n-Octatriacontane n-Nonatriacontane n-Tetracontane	
Drinking Water Treated Water Well Water River Water Ground Water Marine Water	Semi Volatile Organic Compound(SVOC) (Refer Appendix II)	In-House No.G10 based on EPA 525.3 (GCMS)
Palm Oil Waste Water & Effluent	Chemical Oxygen Demand Ammonical Nitrogen Total Suspended Solids Total Nitrogen Oil & Grease Biochemical Oxygen Demand @ 30 °C for 3 Days	D.O.E Reference D.O.E Reference D.O.E Reference D.O.E Reference (Macro-Kjeldahl) D.O.E Reference D.O.E Reference (ALT)
River Water Drinking Water Well Water Ground Water Effluent Waste Water Swimming Pool Water Cooling Tower Water Boiler Water Mineral Water Surface Water Raw Water Potable Water	Chemical Oxygen Demand	APHA 5220 D
Marine Water Sea Water	Total Phosphorus as P Total Phosphorus as PO ₄	APHA 4500-P E
Drinking water, RO Water and Filtered Water	N-Nitrosodimethylamine as NDMA	In house No. FL09 (LCMSMS)

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Solid Waste	<p>Toxicity Leaching Characteristic Procedure (TCLP)</p> <p>For Metal Analysis: Arsenic as As Barium as Ba Boron as B Cadmium as Cd Chromium as Cr Copper as Cu Lead as Pb Mercury as Hg Nickel as Ni Selenium as Se Tin as Sn Zinc as Zn</p> <p>Toxicity Leaching Characteristic Procedure (TCLP) : 2,4-D (2,4 Dichlorophenoxy Acetic Acid) Silvex 2,4,5 TP (2,4,5-Trichlorophenoxypropionic Acid) 2,4,5-T (2,4,5-Trichlorophenoxy Acetic Acid)</p> <p>Total Threshold Limit Concentration (TTLIC): 2,4-D (2,4 Dichlorophenoxy Acetic Acid) Silvex 2,4,5 TP (2,4,5-Trichlorophenoxypropionic Acid) 2,4,5-T (2,4,5-Trichlorophenoxy Acetic Acid)</p>	<p>EPA 1311</p> <p>In- House No.FH 09 Based on Department of Analytical Chemistry, Chemical Faculty Gdansk University of Technology (HPLC)</p>
Sludge	Oil & Grease	APHA - 5520E
Fertilizer	<p>Total Magnesium as MgO Total Calcium as CaO Total Potassium as K₂O</p> <p>Total Nitrogen</p> <p>Total Organic Carbon</p> <p>Total Organic Matter</p> <p>Total Phosphorus as P₂O₅</p>	<p>In-House No. FT02 (Based on MS417:1994 & 1997)</p> <p>In-House No. FT01 (Based on MS 417: Part 3: 1994 & AOAC 991.20)</p> <p>MS 417: Part 8: 1997</p> <p>MS 417: Part 8: 1997</p> <p>MS 417: Part 4: 1994</p>

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Pharmaceutical Products Traditional Medicines	Cadmium, Lead Arsenic Mercury Arsenic	US EPA 6010D (Determination) AOAC 975.03 (Sample Preparation) In-House No. F3 (Based on APHA 3114C) AOAC 971.21 (Sample Preparation) AOAC 971.21 (Flameless AAS Method) In-House No.F88 (Based on USEPA 6010D; ICP-OES AOAC 975.03
Pharmaceutical, Cosmetic and Toiletry Products 1) Non-sterile and Traditional (Herbs Medicinal) Products Powder/Granules Tablets Hard Gel Soft Gel Pill Oil Liquid (Syrup/Water) Cream Ointment Patch/Plaster	Heavy Metals Cadmium Lead Arsenic Mercury Uniformity of Weight	USP<233>,2013 (ICPMS) EP 7.0 (2.9.5),2011
Powder/Granules Tablets Hard Gel Soft Gel Pill	Disintegration	EP 5.0 (2.9.1) 2005
Pharmaceutical product	Propyl Paraben Methyl Paraben	In-House No.FH19 (By HPLC)
Pharmaceutical product Food Supplement Products	Lovastatin as Monacolin K Moisture	In-House No.FH41 (By HPLC) In-House No.F5(Based on AOAC 931.04); Air Oven Method

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food		
Milk	Fat	AOAC 989.05 (Modified Mojonnier Ether Extraction Method)
	Total Nitrogen / Protein	AOAC 991.20 (Kjeldahl Method)
Coconut Cream, Beverages, Ice Cream	Fat	In-House No. F12 (Based on AOAC 989.05) (Modified Mojonnier Ether Extraction Method)
Petai, Tea, Bread, Sauces, Spices, Meat Products, Ice Cream Confectionery, Coconut Milk, Soybean Milk, Beverages Food supplements, pharmaceutical products	Total Nitrogen / Protein	In-House No. F7 (Based on AOAC 991.20) (Kjeldahl Method)
Cocoa Products	Moisture	AOAC 931.04
Butter Products	Salt	AOAC 960.29
Beverages, Sauces	Chloride / Salt	In-House No.F8 (Based on AOAC 960.29)
Beverages	pH	AOAC 945.10
Meat Products, Cocoa Products, Desiccated Coconut	Total Fat	In-House No.F13 (Modified Soxhlet Extraction Method) (Based on AOAC 963.15 and Pearson's Chemical Analysis of Foods, 7 th Ed., 1976; pg 14-15)
Sauces and Ketchup	3 Chloro 1,2 Propanediol (3 MCPD)	In-house No. G7 Journal of AOAC International Vol.84 No 2, 2001 (GCMS)
Dried Plant	Metal Calcium Copper Iron Potassium Manganese Magnesium Zinc	AOAC 975.03
Confectionary	Methyl, Propyl Paraben Methyl p-Benzoate Propyl p-Benzoate	In-House No.FH19 (HPLC)

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food		
Beverages, Coffee and Tea Products	Caffeine	In-House No.FH22 (HPLC)
Sauces	Acidity	MS1120:2004
Fruit Juice	Acidity	AOAC 942.15B
Food Products	Total Dietary Fibre	AOAC 985.29 (Enzymatic-Gravimetric Method)
	Metal (Mercury-Hg)	AOAC 971.21 (Flameless AAS Method)
	Moisture, Total Solids	In-House No. F5 Based on AOAC 931.04); Air Oven Method
	Salt / Sodium Chloride	In-House No.F8 (Based on AOAC 960.29)
	Sugar	In-House No. F9 (Based on Pearson's Chemical Analysis of Foods; 7 th Ed., 1976; pg 121-127)
	Free Fatty Acid	In-House No. F136 (Based on AOCS Ca 5a-40)
	Peroxide Value	In-House No. F141 (Based on AOAC 965.33)
Edible Oils	2- And 3-MCPD Fatty Ester And Glycidyl Ester	In house No. G33 based on AOCS official method Cd 29a-13 (GCMS)
Alcoholic and non-alcoholic beverages, food colouring, dairy products, sugar and its derivatives, meat and meat products, seafood, sauces and condiments, nuts.	Barium Chromium Cobalt Nickel Manganese Phosphorus	In-house No. F88 (USEPA 6010D; ICPOES; AOAC 975.03)

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Food Products (continue)	Fat	In-House No.F2 (Based on Pearson's Chemical Analysis of Foods, 7 th Ed., 1976; pg 14-15); Solvent Extraction-Submersion Method (Modified Soxhlet Extraction Method)
	Benzoic Acid & Sorbic Acid Sodium Benzoate Potassium Sorbate	In-House FH 01 (HPLC) (Based on Journal of Chromatography, Vol. 173, 1979, pg. 343-348)
	pH	In-House No.F6 (Based on AOAC 945.10)
	Crude Fibre	In-House No. F1 (Based on Pearson's Chemical Analysis of Foods, 7 th Ed., 1976; pg 16-18)
	Ash	In-House No. F11 (Based on Pearson's Chemical Analysis of Foods; 7 th Ed., 1976;pg 7-8)
	Energy as Calories	In-House No. F41 (Based on Method of Analysis for Nutrition Labeling, AOAC, 1993)
	Energy from Fat as Calories	In-House No. F42 (Based on Method of Analysis for Nutrition Labeling, AOAC, 1993)
	Total Carbohydrate	In-House No. F43 (Based on Method of Analysis for Nutrition Labeling, AOAC, 1993)
	Carbohydrate	In-House No. F44 (Based on Method of Analysis for Nutrition Labeling, AOAC, 1993)
	Sulphur Dioxide	In-House No. F16 (Based on Pearson's Chemical Analysis of Food 7 th Edition, Pg 29-31)

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food Products (continue)	Water Activity	In-House No. F53 Based on Decagon Paw Kit Water Activity Meter Manual
	Fatty Acid Methyl Esters Saturated Fat / Saturated Fatty Acid Monounsaturated Fat / Monounsaturated Fatty Acid Polyunsaturated Fat / Polyunsaturated Fatty Acid Trans Fat / Tran Fatty Acid EPA (Eicosapentaenoic Acid) DHA (Docasahexaenoic Acid) Omega3 Fatty Acid Omega6 Fatty Acid Omega9 Fatty Acid	In-House No. G3 Based on AOCS (Ce 1-62 Reapproved 1997); GCFID
	Cholesterol	In-House No.GH12 Based on JAOAC International Volume 64, No.1 ,1981 & Volume 73, No 5.1990; GCFID
	Vitamin C as L-Ascorbic Acid	In-House No. FH02 Based on Vitamin Analysis For Food & Health Science, Ronald R. Eitenmiller W.O. Landen, Jr. 1999; HPLC
	Vitamin A as All Trans-Retinol	In-House No. FH03 Based on BS EN 12823-1:2000; HPLC
Flour Confectionary, Bread and Cakes	Propionic Acid Calcium Propionate	In-House No. G15 Based on JAOAC International Volume 64, No 2 1981; GCFID
Beverages, Sweets	Colour (Qualitative) Tartrazine, Sunset Yellow, Ponceau 4r, Carmoisine Colour (Brilliant Blue/Brown HT/Caramel)	In-House No F46 (Based on Pearson's Chemical Analysis of Food, 7 th Edition, Pg 50-60)
Spices, Salted Egg Yolk, Confectionary and Sauces	Sudan I, II, III, IV Para Red	In-House No. FH18 Based on Analysis of Illegal Dyes in Chili Powder by LGC, Oct 2006; HPLC

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food Products	Saccharin Sodium Saccharin	In-House No. FH15 (Based on Journal of Chromatography, 173 (1979), AOAC 979.08 & Merck HPLC Application Note 02138) (HPLC) In-House No. FH08 (HPLC)
Beverages, Flour Confection Fruit Products Honey Products	Sugar Profile: Fructose Glucose Galactose Sucrose Lactose Maltose Aspartame	In-House No. FH15 (By HPLC)
Food Products	Vitamin E as Alpha Tocopherol	In-House No. FH03 (Based on BSEN 12822:2000) (HPLC)
Food Products Food Supplement Dietary Supplement	Nitrate as NaNO_3 Nitrite as NaNO_2 Nitrate and Nitrite as NaNO_3 Nitrite as NO_2 Nitrate as NO_3	In-House No. F90 GB5009.33-2016(Based on National Food Safety Standard Determination of Nitrite and Nitrate in Food (People's Republic of China); Ion Chromatography
	Di-n-Octyl Phthalate(DNOP) Dibutyl Phthalate(DBP) Diisononyl Phthalate(DINP) Benzyl Buthyl Phthalate(BBP) Bis(2 ethyl hexyl)Phthalate(DEHP) Diisodecyl Phthalate(DIDP)	In-House No. G19 (Based on Cao,X.-L.(2010), Phthalate Esters in Foods: Sources, Occurrence and Analytical Methods (GCMS)
	Oil & Fat (Sample Preparation)	In-House No. F89 (Based on AOAC 989.05 Fat or Ether Method)
	Alcohol as Ethanol	In-House No. G14 (Headspace GCFID)
	Brix	In-House No. F19 (Based on Refractometry Method)

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food Products Food Supplement Dietary Supplement	Metal Arsenic Lead Tin Selenium Antimony Cadmium Calcium Sodium Magnesium Potassium Copper Zinc Iron	In-House No.F88 (Based on USEPA 6010D; ICP-OES AOAC 975.03,17 th Edition, 2000
	Heavy Metals Lead Cadmium Arsenic Mercury Antimony Tin Selenium	In house No. F123 based on AOAC 986.15/ ICPMS
	Sodium Cyclamate	In-house No. G9 (Based on GB/T5009.97-2003) GCMS
Additives/ Confectionery/ Nuts/ Dairy products/ Beverages/ Coffee and Tea products	Aluminium as Al	In-house No. F88 (USPEA 6010D/ AOAC 975.03) (ICPOES)
Bird Nest,Dairy Products	Sialic Acid	In-house No. F82 (Based on Chinese Journal Health Laboratory Technology, Mar 2011; Vol 21)
Bird Nest	Hydrogen Peroxide	In-House No. F133 based on GB/T 23499-2009
	Aluminium as Al	In-house No. F198 (GB5009.268 - 2016) (ICPOES)
Birdnest/ Beverages	Citric Acid	In-house No. FH50 (Based on GB5009.157-2016) (HPLC)

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Beverages/Drinks Pharmaceutical Product	Vitamin B1 (Thiamine) Vitamin B2 (Riboflavin) Vitamin B3 (Nicotinamide) Vitamin B3 (Nicotinic Acid) Vitamin B5(Pantothenic Acid) Vitamin B6 (Pyridoxine) Vitamin B9 (Folic Acid) Vitamin B12 (Cyanocobalamine)	Inhouse FL No. 01 (Based on: •Vitamin Analysis for Health and Food Sciences by Ronald R.Eitenmiller •Agilent Application note 5989- 7084EN (LCMSMS) •Measurement of vitamin B12 in beverage by LCMS/MS, Covance Lab Inc. Madison)
Food Products Beverages/Drinks Pharmaceutical Product	Vitamin D3 (Cholecalciferol)	In-House No.FL 02 •Agilent Application Note 5990- 8627EN •BS EN 12823-1:2000 (HPLC)
	Vitamin E as Tocopheryl Acetate	In-House No. FH 25 (Phenomenex Application No. 18695) (HPLC)
	Vitamin A as Retinyl Acetate	In-House No. FH 25 (Determination of Vitamin A in Pharmaceutical Preparation by HPLC; Department of Chemistry, University of Balearic Island,Spain)
	Alpha Lipoic Acid	In-House No. FH 12 (Based on USP32-NF 07 pg:1043- 1044)(HPLC)
	CoENZYME Q10 as Ubidecarenone	In-House No. FH 39 (HPLC)
Cosmetics and Toiletries	Hydroquinone	In-House No. FH 32 (Based on ASEAN method ACM INO 03))(HPLC)
	Tretinoin	In-House No. FH 33 (Based on ASEAN method ACM SIN 01))(HPLC)
	Salicylic Acid Triclosan	In-House No. FH16; HPLC In-House No. FH17; HPLC
	Propyl Paraben/Propyl-p Benzoate Methyl Paraben/Methyl- p Benzoate	In-House No. FH19 (By HPLC)

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food		
Flour and confectionery Nuts, fruits and vegetables and derived products	Acrylamide	In-House No.FH 10 J.Iran.Chem.Soc.,Vol.7,No.4, December 2010 (HPLC)
Dairy products Flour and confectionery Nuts, fruits and vegetables and derived products Sauces, herbs, spices and condiments Pet foods Infant Food	Aflatoxin B1 Aflatoxin B2 Aflatoxin G1 Aflatoxin G2	In-House No.FH 40 Journal of AOAC International Vol.89,No.3,2006 (HPLC)
Dairy products Eggs and egg products Essential nutrients, including vitamins Flour and confectionery Food additives and supplements Infant foods Nuts, fruits and vegetables and derived products Pet foods Sugars and sugar products	Melamine	In-House No. FL 03 based on Agilent Application note 5989-9950EN (LCMSMS)
Fish and fish products Seafood Meat, poultry and derived products	Malachite Green & Leucomalachite Green Crystal Violet & Leucocrystal Violet	In-House No. FL 07 Varian application note SI-01313 (LCMSMS)
	Oxolinic Acid	In-House No.FH 38 Journal of Chromatography B, 51(2001) (HPLC)
Meat and Seafood/Aquaculture Product	Chloramphenicol	In-House No. M11 (Based on Direct Competitive ELISA Method)
	Chloramphenicol	In-House No. M27 (based on Direct Competitive ELISA Method)
Flour Confection, Mooncakes Milk Powder Milk and Milk Based Products Egg and Egg Products Honey		

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food		
Meat and Seafood/Aquaculture Product	Nitrofurans: Furazolidone (AOZ) Furaltadone (AMOZ) Nitrofurazone (SEM) Nitrofurantoin (AHD)	In-House No. M12 (Based on Direct Competitive ELISA Method)
Meat and Poultry	Oxytetracycline	In-House No. M13 (Based on Direct Competitive ELISA Method)
Food Products	Total Aflatoxin	In-House No. M14 (Based on Direct Competitive ELISA Method)
Food Products Grain, cereal, cocoa, corn, coffee, beer and wine	Ochratoxin	In-House No. M17 (Based on Direct Competitive ELISA Method)
Coffee and coffee product Flour and Confectionary Product Cereal and Grain products Beverages Herbs, Spices and Condiments	Ochratoxin A	In-house No. FH47 (HPLC)
Meat and Meat Products Seafood and Seafood Products	Beta Agonist	In-House No. M18 (Based on Direct Competitive ELISA Method)
Milk and Milk Powder	Aflatoxin M1	In-house No.M19(Based on Direct Competitive ELISA Method)
Alcoholic Beverages Dairy Products Edible oil, fats & its products Egg products Flour & confectionery Supplements Meat, poultry & derived products Non-Alcoholic Beverages Nuts, Fruits & Vegetable Derived products Sauces, Herbs, Spices & Condiments Sugar Products Noodle & Pasta Swabs(Workers, Equipment & Uniform	Allergen – Gluten	In-House No. M20 (based on ELISA method)
	Allergen – Egg	In-House No. M21 (based on ELISA method)
	Allergen – Soy	In-House No. M22 (based on ELISA method)
	Allergen – Peanut	In-House No. M23 (based on ELISA method)
	Allergen – Milk	In-House No. M24 (based on ELISA method)
Pet food Coffee and coffee product Flour and Confectionary Product Beverages.	Allergen Fish	In-house No. F150 (ELISA)

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Edible Oil and Fats Oil & Oil Products Fats & Fat Products	Peroxide Value	AOAC 965.33
	Iodine Value	AOAC 993.20
	Saponification Value	AOAC 920.160
	Free Fatty Acid	AOCS Ca5a-40
	Slip Melting Point	ISO 6321: 2002(E)
	Unsaponifiable Matter	AOCS Ca 6a-40
	Moisture and Volatile Matter	ISO 662: 2016 (E)
	Specific Gravity/ Density/ Conventional Mass per Volume Refractive Index	ISO 6883 :2017 (E) AOCS Cc 7-25
	Insoluble Impurities	ISO 663: 2017 (E)
	Cloud Point	AOCS Cc 6-25
	Soap Content	AOCS Cc 17-95
	Anisidine Value	USP30-NF25
	Total Oxidation Value (TOTOX)	USP30-NF25
	Moisture/Water Content (Karl Fischer)	ISO 8534: 2017 (E)
	Peroxide Value	ISO 3960 : 2017 (E)
Palm Oil Products/ Edible Oils	Lovibond Colour	ISO 15305: 1998 (E)
	Acid Value/ Acidity/ Free Fatty Acid	ISO 660: 2009 (E)
	Iodine Value	ISO 3961 :2013 (E)
	Sample Preparation for Test Samples	ISO 661:2003 (E)
Palm Oil Products/ Edible Oils	DOBI	ISO 17932 :2011 (E)
	Total Carotene	ISO 17932 : 2011(E)

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Coffee, Fruits and Vegetables	<p>Organochlorine Pesticides Hexachlorobenzene Alpha-lindane Beta-lindane Gamma-lindane Delta-lindane Heptachlor Aldrin Heptachlor Epoxide Chlordane Endosulfan I Dieldrin Endrin Endosulfan II Endosulfan Sulfate Methoxychlor pp-DDD pp-DDE pp-DDT Endrin Aldehyde Endrin Ketone Endosulfan</p> <p>Organophosphorus Pesticides Thionazin Sulfotep Phorate Dimethoate Methyl Parathion Parathion Disulfoton Famphur Chlorpyrifos Ethion Trithion Malathion Metolachor</p>	In-House No.G1 (based on AOAC 2007.01) (GCMS)

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Coffee, Fruits and Vegetables	Herbicides Molinate Simazine Atrazine Alachlor Ametryn Bentazone Napropamide Insecticides Permethrin Amitraz Pirimicarb	In-House No.G1 (based on AOAC 2007.01) (GCMS)
Food Flour and confectionery products Dairy products Nuts, fruits and vegetables and derived products Herbs, spices and condiments Seafood and seafood derived products Meat, poultry and derived products Edible Oil and Oil derived products Beverages	Multiresidue Pesticides Refer Appendix III	In-house No. G32 based on AOAC 2007.01 (GCMSMS)
Liquid (Syrup/Water)	Ethylene Glycol Diethylene Glycol	In-house No. G40 (GC-FID based on Ph. Eur. method 2.4.30)
Fish and fish product, Meat and meat product, Poultry, Nuts, Fruits and vegetables and derived products, Animal feed and pet food, Beverage, Milk and milk product, Sugar and sugar product, food supplement.	Formaldehyde in food	In-house No. FH49 (HPLC)

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Foods, Agricultural Products and Materials		
Agricultural food products, animal feeds, fruits and vegetables, grains and its derivatives	Fluorine/ Fluoride	In-house No. F188 (Based on AOAC 975.08 & GB/T 5009.18 – 2003)
Raw meat, agricultural foods, animal feeds, grains and its derivatives	Crude Fat	In-house No. F187 (Based on ISO 6942: 1999(E))
Agricultural food products, animal feeds, fruits and vegetables, grains and its derivatives	Crude Fibre	In-house No. F192 (Based on ISO 5498: 1981E)
Animal feeds, grains and its derivatives	Crude Protein	In-house No. F188 (AOAC 991.20 & AOAC 2001.11)
Seafood, Non-alcoholic and alcoholic beverages, confectionery, dairy products, sauces, animal feeds Fish and Fish Products	Histamine	In-house No. F173 (Based on ELISA Method)
Animal feeds	Moisture	In-house No. F5 (Based on AOAC 931.04/ Air Oven Method)
Animal feeds, meat and meat products, grains	Ochratoxin A	In-house No. FH145 (HPLC)
Animal feeds, food products.	Arsenic Mercury Cadmium Lead	In-house No. F123 (Based on AOAC 986.15/ ICPMS)
	Ash	In-house No. F11 (Based on Pearson's Chemical Analysis of Foods; 7th Ed., 1976; Pg 7-8)
Oil & Oil Products, Fats & Fat Products, Edible Oil and Oil derived products, Animal feed, Pet food, Confectionery, dairy products, Sauces, Fruits and vegetables, grains and its derivatives, Herbs, spices and condiments, Coffee and coffee product.	Antioxidant Butylated hydroxyanisole (BHA) Butylated hydroxytoluene (BHT) tert-Butylhydroquinone (TBHQ)	In-house No. FH29 (HPLC)

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SCOPE OF TESTING: CHEMICAL (SITE TESTING)

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental		
Ambient Air	Total Suspended Particulate	ASTM D 4096-17
	Nitrogen Dioxide	ASTM D 1607-91 (Reapproved 2018)
	Nitrogen Dioxide	APHA Method of Air Sampling and Analysis 1977 (Method No. 42602-03-73T)
	Sulfur Dioxide	ASTM D 2914-91(West-Gaeke Method)
	Carbon Monoxide	ASTM D 4599-21 (using Length-of-Stain Dosimeter)
	Particulate Matter 10 Micrometers (PM10)	US EPA 40CFR Part 50 Appendix J
	Particulate Matter 2.5 Micrometers (PM2.5)	US EPA 40CFR Part 50 Appendix L
Work Place Air	Ozone	Inhouse Number E4 based on Aeroqual Series 500 for Ozone (O ₃)
	Free Chlorine	APHA Method of Air Sampling and Analysis 1977 (Method No. 209)
River Water, Drinking Water, Well Water, Ground Water, Effluent, Waste Water, Swimming Pool Water, Cooling Tower, Boiler Water.	Cyanide	APHA Method of Air Sampling and Analysis 1977 (Method No. P & CAM 116)
	pH	In-House Number E1 Based on APHA 4500-H B (In Situ)
	Free Chlorine	In-House Number E2 Based on HACH Method for Chlorine (Cl ₂) (In Situ)
	Turbidity	APHA - 2130 B (In Situ)
	Colour	APHA - 2120 B (In Situ)
	Dissolved Oxygen	APHA - 4500-O G (In Situ)
	Temperature	APHA - 2550 B (In Situ)
Total Chlorine	In-House Method E3 Based on HACH Method for Chlorine (Cl ₂)	

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SCOPE OF TESTING: CHEMICAL (SITE TESTING)

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Air Emission	Sample and Velocity Traverses for Stationary Sources	US EPA Method 1
	Gas Velocity and Volumetric Flow Rate	US EPA Method 2 (Type S Pitot Tube)
	Moisture Content	US EPA Method 4
	Particulate Matter	US EPA Method 5
	Sulfuric Acid and Sulfur Dioxide	US EPA Method 8
	Hydrogen Chloride Chlorine Hydrofluoric Acid Fluorine	US EPA Method 26A (Sampling Part Only)
	Mercury Cadmium Lead Antimony Arsenic Zinc Copper	US EPA Method 29
	Concentration and Mass Flow of Particulate Matter	MS 1596: 2003
	Dark Smoke	BS 2742:2009 (Ringelmann Smoke Chart)

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SCOPE OF TESTING: MECHANICAL (SITE TESTING)

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Noise Measurement	Noise Level	ISO1996 (Part1and 2 2017)
Vibration Measurement	Vibration Level	BS 6472: 1992 Guide to evaluation to human exposure to vibration in buildings (1 Hz to 80 Hz) DIN 4150-Part 3: Structural vibration in buildings

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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		
River Water	Heterotrophic Plate Count (35°C)	APHA - 9215B; 2023
Drinking Water		
Well Water	Total Coliform	APHA - 9221B; 2023 (MPN)
Ground Water		
Effluent	Fecal Coliform	APHA - 9221E.1; 2023 (MPN)
Waste Water		
Raw Water	<i>Escherichia coli</i>	APHA - 9221G.2; 2023 (MPN)
Sewage		
Treated Water	Total Coliform (100 ml)	APHA - 9222B; 2023 (Membrane Filtration Procedure)
Swimming Pool		
Cooling Tower Water		
Mineral Water	Fecal Coliform (100 ml)	APHA - 9222D; 2023 (Membrane Filtration Procedure)
Marine Water		
Reverse Osmosis Water		
Deionised Water	<i>Escherichia coli</i> (100 ml)	APHA – 9222I; 2023 (Membrane Filtration Partition Procedure)
Dialysis Water		
	<i>Pseudomonas aeruginosa</i> (100 ml)	APHA - 9213E: 2023) (Membrane Filtration Procedure)
	<i>Staphylococcus aureus</i> (100 ml)	APHA - 9213B.6; 2023 (Membrane Filtration Procedure)
	Heterotrophic Plate Count (100 ml)	APHA 9215 D; 2023 (Membrane Filtration Method)
	Total Fungal	APHA 9610B; 2023
	<i>Clostridium perfringens</i>	NSM W5, 2004
	<i>Salmonella</i>	APHA 9260B, 2017 (Detection)
	<i>Fecal Streptococci / Enterococci</i>	APHA 9230C (CFU); 2017
	<i>Fecal Streptococci / Enterococci</i>	APHA 9230B (MPN); 2017
Cooling Tower	Total Legionella	AS 5132:2017
Tap Water	<i>Legionella pneumophila</i>	AS 3896:2017
Fountain water	Serogroup 1	
Swimming Pool	<i>Legionella pneumophila</i>	
Condenser water	Serogroup 2-14	
Drinking water	<i>Legionella spp</i> (unidentified)	
Swimming pool/Jacuzzi water /Whirlpool/Hot Spring	<i>Pseudomonas aeruginosa</i>	APHA 9213E: 2023

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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 RO Dialysis water & Ultrapure water	Endotoxin	Rapid Gel Clot
Dialysis water Reverse osmosis water & Ultrapure water	Endotoxin	USP 42 <85>; 2023. Bacterial Endotoxin Test
Drinking Water Treated Water Mineral Water Reverse Osmosis Water Deionised Water	Heterotrophic Plate Count (35°C)	APHA 9215B, 2023
	Sulphite-reducing Anaerobes (Clostridia) (100 ml)	ISO 6461/2: 1986
	Heterotrophic Plate Count (37°C) at 48h, CFU/mL	In-house number M40 (Based on APHA 9215B: 2023
Bottled Water (Drinking water other than mineral water /mineral water) Treated Water Deionized Water Reverse Osmosis Water Distilled water Ice Spring Water	<i>Pseudomonas aeruginosa</i> (ISO)-100mL& 250mL	ISO 16266:2006 (E)
Bottled Water (Mineral Water) Spring Water	<i>Fecal streptococcus/ Enterococcus</i> (250mL)	In-house number M44 based on APHA 9230C: 2023 (Membrane Filtration Method)
	Sulphite Reducing Anaerobe (Clostridia) (50mL)	In-house number M45 based on ISO 6461/2:1986 (Membrane Filtration Method) (Detection)
	Total Coliform (250mL)	In-house M41 based on APHA 9222B: 2023 (Membrane Filtration Method)
Potable Water, Purified Water, Reverse Osmosis and Deionized Water	Fecal coliform (250mL)	In-house number M42 based on APHA 9222D: 2023 (Membrane Filtration Method)
	<i>Escherichia coli</i> (250mL)	In-house number M43 based on APHA 9222I: 2023 (Membrane Filtration Method)
Potable Water, Purified Water, Reverse Osmosis and Deionized Water	Total Viable Aerobic Count as Total Aerobic Microbial Count and Total Combined Yeasts and Moulds Count	BP2023 Appendix XVI B.5

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Dairy and probiotics product and Health Supplements	<i>Bifidobacteria</i>	ISO 29981: 2010
	<i>Lactobacillus</i> spp	CLMM; Chapter 38, 1998
UHT milk/Sterilized dairy product	Aerobic Plate Count	National Standard Method: Plate Count Test at 30°C 2010
Seafood and Seafood Product	<i>Vibrio parahaemolyticus</i>	FDA/BAM; Chapter 9 (MPN); 20042010
Food, Perishable Food Products, Canned Foods	Yeasts and Molds	FDA / BAM Chapter 18; 2001
	Aerobic Plate Count	FDA / BAM Chapter 3: 2001
	Coliforms	FDA / BAM Chapter 4 (MPN) :2020
	Fecal Coliforms	FDA / BAM Chapter 4 (MPN) 2020
	<i>Escherichia coli</i>	FDA / BAM Chapter 4 (MPN) 2020
	Coliform Counts	AOAC 991.14 (3M); 1995
	<i>Escherichia coli</i> Counts	AOAC 991.14 (3M); 1995
	<i>Salmonella</i>	FDA / BAM Chapter 5; 2023 (Detection)
	<i>Staphylococcus aureus</i>	FDA / BAM Chapter 12; 2016 (CFU/MPN)
	<i>Listeria</i> spp	FDA / BAM Chapter 10; 2022 (Detection)
	<i>Listeria monocytogenes</i>	FDA / BAM Chapter 10; 2022 (Detection)
	<i>Lactobacillus</i> spp	CLMM Chapter 38; 1998
	<i>Bacillus cereus</i>	AOAC 980.31; 2023
	Enterobacteriaceae	BS ISO 21528-1:2017 (MPN)

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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, Perishable Food Products, Canned Foods	<i>Clostridium perfringens</i>	FDA/BAM Chapter 16; 2001
	Aerobic Plate Count	AOAC 990.12 (3M); 2000
	Standard Plate Count	AS 1766.2.1-1991
	Enterobacteriaceae	AOAC 2003.01 (3M)
	<i>Shigella spp</i>	BS EN ISO 21567:2004 (Detection)
	E. coli 0157: H7	In-house No. M31 based on RapidChek Kit Manual) (Detection)
	<i>Campylobacter spp</i>	ISO 10272-2:2017
	<i>Salmonella spp</i>	AOAC 2014.01:2017 (3M) (Detection)
	<i>Staphylococcus aureus</i>	AOAC 2003.11.2007 (3M)
	Yeast	In-house No. M32 based on FDA/BAM Chapter 18
	Molds	In-house No. M33 based on FDA/BAM Chapter 18
	Coagulase-positive Staphylococci	BS EN ISO 6888-1+A2:2018
	Yeasts and Molds	AOAC 2014.05:2017 (3M-Rapid)
Tomato and chilli products	Howard Mold Count	AOAC 965.41 & 984.29
Food products and Perishable Food	Mesophilic Lactic Acid Bacteria	ISO 15214:1998
Food, Perishable Food Products, Canned Food, Pet Food and Feeds.	Aerobic Plate Count	ISO 4833-1:2013
	Yeasts and Molds	ISO 21527-1:2008
	Yeasts and Molds	ISO 21527-2:2008
	Presumptive <i>Bacillus cereus</i>	BS EN ISO 7932:2004
	<i>Clostridium perfringens</i>	ISO 7937:2004

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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, Perishable Food Products, Canned Food, Pet Food and Feeds.	<i>Enterobacteriaceae</i>	ISO 21528-2:2017
	<i>Escherichia coli</i>	ISO 16649-2:2001
	<i>Presumptive Escherichia coli</i>	ISO7251:2005 (MPN)
	<i>Coliforms</i>	BS ISO 4831:2006 (MPN)
Food, Perishable Food Products, Dairy Products, Pet Food and Feeds,	<i>Listeria spp.</i>	ISO 11290-1:2017 (Detection)
	<i>Listeria monocytogenes</i>	ISO 11290-1:2017 (Detection)
	<i>Salmonella</i>	ISO 6579:2002 (Detection)
	<i>Coliform (per 1 g)</i>	ISO 4831 (Detection)
	<i>Escherichia coli (per 1g)</i>	ISO 7251:2005 (Detection)
Food, Perishable Food Products, Canned Food and Pet Food.	Yeast	In-house M34 based on AOAC 2014:05:2017
	Mold	In-house M35 based on AOAC 2014:05:2017
Pharmaceuticals Cosmetic Product	Aerobic Plate Count	FDA / BAM Chapter 23; 2021
	<i>Staphylococcus aureus</i>	FDA / BAM Chapter 23; 2021
	Yeasts and Molds	FDA / BAM Chapter 23; 2021
Cosmetics and Toiletries	<i>Pseudomonas aeruginosa</i> (0.1g)	In-house No. M36 Based on BP2019 (Detection)
	<i>Staphylococcus aureus</i> (0.1g)	In-house No. M37 Based on BP2019 (Detection)
	<i>Candida albican</i> (0.1g)	In-house No. M38 Based on BP2019 (Detection)
	<i>Burkholderia cepacia</i> (0.1g)	In-house No. M46 Based on BP2019 Appendix XVI B4 and Hi- Media Manual (Detection)

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Pharmaceutical Toiletries and Personal Care Wipes	Total Aerobic Microbial Count	BP 2019 Appendix XVI B.5
	Total Yeast Count	M329 Based on BP2019; Appendix XVI B.5
	Total Mold Count	M330 Based on BP2019; Appendix XVI B.5
Pharmaceutical, Cosmetic and Toiletry Products		
1) Non-sterile and Traditional (Herbs Medicinal) Products	Total Viable Aerobic Count as Total Aerobic Microbial Count and Total Combined Yeasts and Moulds Count	BP 2013/2019 Appendix XVI B.5
2) Traditional (Herbs Medicinal) Products Using boiling water Uses pre-treatment Without/low level of pre-treatment Powder/Granules Tablets Hard Gel Soft Gel Pill Oil Liquid (Syrup/Water) Cream Ointment Patch/Plaster	Bile - Tolerant Gram-Negative Bacteria	BP 2013/2019 Appendix XVI B.4.1 (Count)
	<i>Escherichia coli</i>	BP 2013/2019 Appendix XVI B.4.2 (Detection)
	<i>Staphylococcus aureus</i>	BP 2013/2019 Appendix XVI B.4.5 (Detection)
	<i>Salmonella</i> (10 g)	BP 2013/2019 Appendix XVI B.4.3 (Detection)
	<i>Pseudomonas aeruginosa</i>	BP 2013/2019 Appendix XVI B.4.4 (Detection)
	<i>Candida albican</i>	BP 2013/2019 Appendix XVI B.4.7 (Detection)
	<i>Burkholderia cepacia</i>	In-house M128 based on BP2019 appendix XVI B4 and Hi-Media Manual (Detection)
	Bile - Tolerant Gram-Negative Bacteria	BP 2013/2019 Appendix XVI F (Count)
	<i>Escherichia coli</i>	BP 2013/2019 Appendix XVI F (Detection)
	<i>Salmonella</i> (25 g)	BP 2013/2019 Appendix XVI F (Detection)
Pharmaceutical, Cosmetics and Toiletries Products	<i>Burkholderia cepacia</i> (1g & 0.1g)	USP 60,2019

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Pharmaceutical, Cosmetics, Toiletries, and Personal care Products.	Total Viable Aerobic Count as Total Aerobic Microbial Count and Total Combined Yeasts and Moulds Count	BP2023 Appendix XVI B.5
1.Non-sterile and traditional (Herbs Medicinal) Products	Bile-Tolerant Gram-Negative Bacteria	BP 2023 Appendix XVI B.4.1 (Count)
2.Traditional (Herbs Medicinal) Products -Using boiling water -Uses pre-treatment -Without/low level of pre- treatment -Powder/Granules -Tablets -Hard Gel -Soft Gel -Pill -Capsule -Oil -Liquid (Syrup/Water) -Cream -Ointment -Patch/Plaster -Orodispersible films	Bile-Tolerant Gram-Negative Bacteria <i>Escherichia coli</i> <i>Escherichia coli</i> (0.1g)	BP 2023 Appendix XVI B.4.1 (Test for absence) BP 2023 Appendix XVI B.4.2 (Detection) In-house M56 based on BP 2023 (Detection)
	<i>Staphylococcus aureus</i>	BP 2023 Appendix XVI B.4.5 (Detection)
	<i>Staphylococcus aureus</i> (0.1g)	In-house M57 based on BP 2023 (Detection)
3. Cosmetic and Toiletries Product	<i>Salmonella</i> (10g)	BP2023 Appendix XVI B.4.3 (Detection)
4. Personal Care	<i>Pseudomonas aeruginosa</i>	BP2023 Appendix XVI B.4.4 (Detection)
	<i>Pseudomonas aeruginosa</i> (0.1g)	In-house M58 based on BP 2023 (Detection)
	<i>Candida albican</i>	BP2023 Appendix XVI B.4.7 (Detection)
	<i>Candida albican</i> (0.1g)	In-house M59 based on BP 2023 (Detection)
	Bile-Tolerant Gram-Negative Bacteria	BP 2023 Appendix XVI F (Count)
	Bile-Tolerant Gram-Negative Bacteria	BP 2023 Appendix XVI F (Test for absence)
	<i>Escherichia coli</i>	BP 2023 Appendix XVI F (Detection)
	<i>Salmonella</i> (25g)	BP2023 Appendix XVI F(Detection)

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Pharmaceutical, Cosmetics, Toiletries, and Personal care Products. 1. Non-sterile and traditional (Herbs Medicinal) Products 2. Traditional (Herbs Medicinal) Products -Using boiling water -Uses pre-treatment -Without/low level of pre- treatment -Powder/Granules -Tablets -Hard Gel -Soft Gel -Pill -Capsule -Oil -Liquid (Syrup/Water) -Cream -Ointment -Patch/Plaster -Orodispersible films 3. Cosmetic and Toiletries Product 4. Personal Care	Total Yeasts Count Total Mold Count	In-house M60 based on BP 2023; Appendix XVI B.5 In-house M61 based on BP 2023; Appendix XVI B.5

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Swab Food Contact Surface Food Handler Hygiene Food Utensil	Aerobic Plate Count	CMMEF Chapter 3; 1992 & FDA / BAM; Chapter 3; 2001
	Yeasts & Molds	CMMEF Chapter 3; 1992 & FDA / BAM; Chapter 18; 2001
	Coliforms	CMMEF Chapter 3; 1992 & FDA / BAM; Chapter 4; 2020 & Chapter 3
	<i>Escherichia coli</i>	CMMEF Chapter 3, 1992 & FDA / BAM; Chapter 4; 2020 & Chapter 3
	<i>Salmonella</i> spp	CMMEF Chapter 3, 1992 & FDA/BAM Chapter 5; 2023 (Detection)
	<i>Listeria</i> spp	CMMEF Chapter 3, 1992 & FDA/BAM Chapter 10; 2022 (Detection)
	<i>Staphylococcus aureus</i>	CMMEF Chapter 3: 1992 & FDA/BAM, Chapter 12:2016
	Enterobacteriaceae	CMMEF Chapter 3: 1992 & AOAC 2003.01:2010
	<i>Listeria</i> spp.	ISO 11290-1:2017 (Detection)
	<i>Listeria monocytogenes</i>	ISO 11290-1:2017 (Detection)
	<i>Salmonella</i>	ISO 6579:2002 (Detection)
	<i>Coliform</i> (per 1 g)	ISO 4831 (Detection)
	<i>Escherichia coli</i> (per 1g)	ISO 7251:2005 (Detection)
Swab (Sponge Method) Food Contact Surface Food Handler Hygiene Food Utensil	Aerobic Plate Count	In-house No. M1 based on ISO 18593:2004 (E) & FDA/BAM; Chapter 3; 2001
	Yeasts and Molds	In-house No. M2 based on ISO 18593:2004 (E) & FDA/BAM ; Chapter 18; 2001
	<i>Salmonella</i> spp	In-house No. M176 based on ISO 18593: 2004 (E) & FDA/BAM; Chapter 5; 2023 (Detection)
	<i>Listeria</i> spp	In-house No. M177 based on ISO 18593: 2004 (E) & FDA/BAM; Chapter 10; 2022 (Detection)

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Swab (Sponge Method) Food Contact Surface Food Handler Hygiene Food Utensil	Coliform	Inhouse No.M52 based on ISO 18593:2018, FDA/BAM ; Chapter 4
	<i>Escherichia coli</i>	Inhouse No.M53 based on ISO 18593:2018, FDA/BAM; Chapter 4
	<i>Staphylococcus aureus</i>	In- house No. M48 based on ISO 18593 & FDA/BAM, Chapter (12:2016)
	Lactic Acid Bacteria	In house No. M50 based on ISO 18593 & CMMEF; (Chapter 19)
	Enterobacteriaceae	In-house No. M51 based on ISO 18593 & AOAC 2003:01:2010
	<i>Listeria spp.</i>	ISO 11290-1:2017 (Detection)
	<i>Listeria monocytogenes</i>	ISO 11290-1:2017 (Detection)
	<i>Salmonella</i>	ISO 6579:2002 (Detection)
	Coliform (per 1 g)	ISO 4831 (Detection)
	<i>Escherichia coli</i> (per 1g)	ISO 7251:2005 (Detection)
Microbial Air Density	Aerobic Plate Count	APHA - 9020 B.2.e; 1998 & FDA/BAM; Chapter 3 (Open Plate Method)
	Yeasts & Molds	APHA - 9020 B.2.e; 1998 & FDA/BAM; Chapter 18 (Open Plate Method); 2001
	Total Bacteria Count	In-House No. M29 (based on USP 2013 & USP 2017) (Open Plate)
	Total Fungi Count	In-House No. M29 (based on USP 2013 & USP 2017) (Open Plate)
	Total Microbial Count	In-House No. M29 (based on USP 2013 & USP 2017) (Open Plate)

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Microbial Air Monitoring	Aerobic Plate Count	In-House No.M3 based on Air Sampler Manual, FDA/BAM; Chapter 3; 2001 & 0800, Issue 1; 1998 (NMAM)
	Yeasts & Molds	In-House No.M4 based on Air Sampler Manual, FDA/BAM; Chapter 18; 2001 & 0800, Issue 1; 1998 (NMAM)
	Total Bacteria Count	In-House No.M5 based on Air Sampler Manual USP NF 25; 2007 & 0800, Issue 1; 1998 (NMAM)
	Total Fungal Count	In-House No.M6 based on Air Sampler Manual, USP NF 25; 2007 & 0800, Issue 1; 1998 (NMAM)
	Total Microbial Count	In-House No.M7 based on Air Sampler Manual, USP NF 25; 2007 & 0800, Issue 1; 1998 (NMAM)

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SCOPE OF TESTING: NUCLEIC ACID

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Food products, pharmaceutical, cosmetic and toiletry products	Pork DNA Identification	In-house No. M26 Qualitative Detection using Real-Time PCR
Plants and Plants Derived Products	GMO Identification -35S Promoter -NOS Terminator -34S FMV	In-house M 47 Qualitative Detection Using Real Time PCR
Food products	<i>Vibrio cholera</i>	In-house M54 Qualitative Detection using Real- Time PCR.
	<i>Vibrio paraheamolyticus</i>	In- house M55 Qualitative Detection using Real- Time PCR

Abbreviation:

APHA	American Public Health Association, 21 st Ed., 2005, 23 rd Ed, 2017, 24 th Ed, 2023
APHA *	American Public Health Association, 16 th Ed., 1989.
FDA/BAM	Food and Drugs Administration / Bacteriological Analytical Manual (FDA/BAM) Online
AOAC	Official Methods of Analysis of AOAC International, 16 th Ed., 1995 / 2003
AS/NZS 3896	Standard Method for the Examination of Water for Legionella including <i>Legionella pneumophila</i> 1998 (Australia / New Zealand Standard).
ASTM	Associated Standard Testing Methods.
EPA	Environmental Protection Agency Methods.
AOCS	Official Methods of American Oil of Chemists Society.
BP	British Pharmacopeia
CMMEF	Compendium of Microbiological Method Examination of Food, 3 rd Edition
CLMM	Collins and Lyne's Microbiological Methods; 7 th Edition 1998.
ISO	International Organization for Standardization
JAOAC	Journal of AOAC International
LGC	London Government Chemist
BS EN	British Standard - European Number
BS	British Standard
TNRCC	Texas Natural Resource Conservation Commission

Chemical Testing on Water:

- 1) Standard Method for the Examination of Water and Waste Water (2005), 21st Ed. APHA, AWWA, WEF.
- 2) Standard Method for the Examination of Water and Waste Water (1989), 16th Ed. APHA, AWWA, WPCF.
- 3) Environmental Protection Agency Methods. 1994, 1996, 2012, 2018.
- 4) Revised Standard Method for Analysis of Rubber and Palm Oil Mill Effluent 3rd Edition DOE 2011.
- 5) Standard Method for the Examination of Water and Waste Water (2018), 23rd Ed. APHA AWWA, WEF.

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Chemical Testing on Food:

- 1) Official Methods of Analysis of AOAC, 21st Edition (2019).
- 2) The Chemical Analysis of Foods, 7th Edition, Pearson, D. (1976).
- 3) Standard Method for the Examination of Water and Waste Water (2005) 21st Ed. APHA, AWWA, WEF.
- 4) Official Methods of American Oil of Chemists Society, 1989.
- 5) Vitamin Analysis for Food & Health Science Ronald R.Eitenmiller 7 W. O Landen Jr 1999.
- 6) Methods of Analysis For. Nutrition Labeling, AOAC 1993.
- 7) International Organization for Standardization, ISO (1998, 2002, 2003, 2009,2011,2013,2016 and 2017
- 8) United States Pharmacopeia (USP) 2007.
- 9) European Pharmacopeia (EP) 2005
- 10) Environmental Protection Agency Methods 2018

Chemical Testing on Environmental:

- 1) Annual Book of ASTM Standard (1993) Vol. 11.03.
- 2) APHA Method of Air Sampling and Analysis (2nd Edition).
- 3) US EPA CFR40 Part 60 Appendix A.
- 4) International Organization for Standardization, ISO 1996-1:2003(E), ISO 1996-2:1987(E) & ISO 1996-3:1987(E)
- 5) British Standard, BS2742:1969

Microbiological Testing on Water:

- 1) Standard Method for the Examination of Water for Legionella including *Legionella pneumophila*, 1998 (Australian / New Zealand Standard).
- 2) BP Pharmacopeia 2023
- 3) Standard Method for the Examination of Water and Waste Water (2023), 24th Ed. APHA, AWWA, WEF.

Microbiological Testing on Food:

- 1) Food and Drugs Administration / Bacteriological Analytical Manual (FDA/BAM) Online
- 2) AOAC Standard Methods -16th Edition, 1995, 2010 / 2003 / 2023
- 3) Collins and Lyne's Microbiological Methods; 7th Edition 1998.
- 4) Media wiley.com: Heat Treatment of Milk
- 5) Microbiology of Food and Animal Feeding Stuffs. Horizontal Method for the detection of *Shigella* spp.; 2004

Microbiological Testing on Cosmetic:

- 1) Food and Drugs Administration / Bacteriological Analytical Manual (FDA/BAM) Online, December 2021.

Microbiological Testing on Pharmaceutical:

- 1) British Pharmacopeia 2013
- 2) British Pharmacopeia 2019
- 3) British Pharmacopeia 2023

Microbiological Testing on Environmental:

- 1) Compendium of Method Microbiological Examination of Foods, 3rd Edition
- 2) Food and Drug Administration/Bacteriological Analytical Manual (FDA/BAM) Online.
- 3) Standard Method for the Examination of Water and Wastewater (2023); 24^h Edition, APHA, AWWA, WEF
- 4) Merck MAS 100ECO Air Sampler Manual.
- 5) 0800, Issue 1: NIOSH Manual of Analytical Methods (NMAM); Fourth Edition (1998)
- 6) USP 30 NF (2007) (2013) (2017)
- 7) International Organization for Standardization 18593:2004 (E)
- 8) Cantium Air Sampler Manual

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**APPENDIX I
VOLATILE ORGANIC COMPOUNDS (VOC)**

1,1,1,2-Tetrachloroethane	Chloroethane
1,1,1-Trichloroethane	Chloroform
1,1,2,2-Tetrachloroethane	Chloromethane
1,1,2-Trichloroethane	Cis-1, 2-Dichloroethene
1,1-Dichloroethane	Cis-1,3-Dichloropropene
1,1-Dichloroethene	Dibromochloromethane
1,1-Dichloropropene	Dibromomethane
1,2,3-Trichlorobenzene	Dichlorofluoromethane
1,2,3-Trichloropropane	Ethylbenzene
1,2,4-Trichlorobenzene	Hexachlorobutadiene
1,2,4-Trimethylbenzene	Isopropylbenzene
1,2-Dibromo-3-chloropropane	m-Xylene
1,2-Dibromoethane	methylene chloride
1,2-Dichlorobenzene	n-butylbenzene
1,2-Dichloroethane	n-propylbenzene
1,2-Dichloropropane	Naphthalene
1,3,5-Trimethylbenzene	O-xylene
1,3-Dichlorobenzene	p-Isopropyltoluene
1,3-Dichloropropane	p-Xylene
1,4-Dichlorobenzene	sec-Butylbenzene
2-Chlorotoluene	Styrene
4-Chlorotoluene	Tert-butylbenzene
Benzene	Tetrachloroethene
Bromobenzene	Toluene
Bromochloromethane	Trans-1,2-Dichloroethene
Bromodichloromethane	Trans-1,3-Dichloropropene
Bromoform	Trichloroethene
Bromomethane	Trichlorofluoromethane
Carbon Tetrachloride	Vinyl Chloride
Chlorobenzene	

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**APPENDIX II
SEMI VOLATILE ORGANIC COMPOUNDS (SVOC)**

Pyridine
 Phenol
 Aniline
 2-Chlorophenol
 Benzyl alcohol
 2-Methylphenol
 Bis(2-chloroisopropyl)ether
 4-Methylphenol (p-Cresol)
 Hexachloroethane
 Nitrobenzene
 2-Nitrophenol
 2,4-Dimethylphenol
 Bis(2-chloroethoxy)methane
 2,4-Dichlorophenol
 1,2,4-Trichlorobenzene
 Naphthalene
 p-Chloroaniline
 4-Chloro-3-methylphenol
 2-Methylnaphthalene
 1-Methylnaphthalene
 Hexachlorocyclopentadiene
 2,4,6-Trichlorophenol
 2,4,5-Trichlorophenol
 2-Chloronaphthalene
 Dibenzofuran
 2,3,4,6-Tetrachlorophenol
 2,3,5,6-Tetrachlorophenol
 4-Chlorodiphenyl ether
 Diphenylamine
 Azobenzene
 4-Bromodiphenyl ether
 Carbazole
 Fluoranthene
 Diisooctyl Adipate
 Di-n-octyl phthalate (DnOP)
 Isophorone
 Dimethyl phthalate
 2,6-Dinitrotoluene
 Acenaphthylene
 Acenaphthene
 Diethyl phthalate
 Fluorene
 Hexachlorobenzene
 Phenanthrene
 Anthracene
 Dibutyl phthalate
 Pyrene
 Butylbenzylphthalate
 Chrysene
 Bis(2-ethylhexyl)phthalate (DEHP)
 Benzo(b)fluoranthene
 Benzo(k)fluoranthene
 Benzo(a)pyrene

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**APPENDIX III
MULTIRESIDUE PESTICIDES (GCMSMS)**

Pesticide - Organochlorine	
88	<i>trans</i> -Nonachlor
89	α -BHC
90	β -BHC
91	γ -BHC (Lindane)
92	δ -BHC
Pesticide - Organonitrogen	
93	2,3,5,6-Tetrachloroaniline 2,6-Dichlorobenzonitrile (Dichlobenil)
94	3,4-Dichloroaniline
95	Acetochlor
96	Allidochlor
97	Benfluralin
98	Biphenyl
99	Bupirimate
100	Captafol
101	Captan
102	Chlorfenapyr
103	Chlorothalonil
104	Clomazone (Command)
105	Cyprodinil
106	Dichlofluanid
107	Dichloran
108	Dimethachlor
109	Diphenamid
110	Diphenylamine
111	Ethalfuralin
112	Fenarimol
113	Fipronil
114	Fluchloralin
115	Fludioxonil
116	Fluridone (Sonar)
117	Flutolanil
118	Folpet
119	Hexazinone (Velpar)
120	Iprodione
121	Isopropalin
122	Lenacil
123	Linuron
124	Metazachlor
125	Metolachlor
126	MGK-264
127	N-(2,4-Dimethylphenyl)formamide
128	Nitralin
129	
133	Oxyfluorfen
134	Pendimethalin
135	Pentachloroaniline
136	Pentachlorobenzonitrile Pentachloronitrobenzene (Quintozene)
137	
138	Pretilachlor
139	Prochloraz
140	Procymidone
141	Prodiamine
142	Profluralin
143	Propachlor
144	Propanil
145	Propargite
146	Propisochlor
147	Propyzamide
148	Pyridaben
149	Pyrimethanil
150	Pyriproxyfen
151	Tebufenpyrad
152	Terbacil
153	Terbuthylazine
154	Tetrachloronitrobenzene (Tecnazene)
155	THPI (Tetrahydrophthalimide)
156	Tolyfluanid
157	Trifluralin
158	Vinclozolin
Pesticide - Carbamate	
159	Phosalone
160	Chlorpropham
161	Pirimicarb
Pesticide - Thiocarbamate	
162	Cycloate
163	Diallate (<i>cis</i> & <i>trans</i>)
164	Molinate
165	Pebulate
166	Triallate
Pesticide - Pyrethroids	
167	Acrinathrin
168	Anthraquinone
169	Bifenthrin
170	Bioallethrin (allethrin)
171	<i>cis</i> -Permethrin
172	Cyfluthrin

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130	Nitrofen	173	Cypermethrin
131	Norflurazon	174	Deltamethrin
132	Oxadiazon	175	Etofenprox

Pesticide - Pyrethroids

176	Fenpropathrin
177	Fenvalerate
178	Flucythrinate
179	lambda-Cyhalothrin
180	Phenothrin (<i>cis</i> & <i>trans</i>)
181	Resmethrin
182	tau-Fluvalinate
183	Tefluthrin
184	Tetramethrin
185	Transfluthrin
186	<i>trans</i> -Permethrin

Pesticide - Triazoles

187	Etridiazole
188	Fluquinconazole
189	Flusilazole
190	Flutriafol
191	Myclobutanil
192	Paclobutrazol
193	Penconazole
194	Tebuconazole
195	Triadimefon
196	Triadimenol
197	Tricyclazole (Beam)
198	Triflumizole



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Pesticide - Triazine

- 199 Atrazine
- 200 Simazine
- 201 Ametryn

Pesticide - Others

- 202 2-Phenylphenol
- 203 Acequinocyl
- 204 Bromopropylate
- 205 Carfentrazone ethyl
- 206 Chlorobenzilate
- 207 Chlozolate
- 208 DCPA methyl ester (Chlorthal-dimethyl)
- 209 Fluazifop-*p*-butyl
- 210 Metalaxyl
- 211 Bentazone
- 212 Napropamide
- 213 Amitraz