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NO: SAMM 194

LABORATORY LOCATION/ CENTRAL OFFICE:	Borneo Samudera Sdn. Bhd. KM 37 Tawau-Semporna Highway Locked Bag No. 28, 91009 Tawau, Sabah , 91009, SABAH MALAYSIA
ACCREDITED SINCE :	05 MARCH 2026
FIELD(S) OF TESTING:	CHEMICAL

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).

CENTRAL LOCATION:	Borneo Samudera Sdn. Bhd. KM 37 Tawau-Semporna Highway Locked Bag No. 28, 91009 Tawau, Sabah , 91009, Sabah
FIELD(S) OF TESTING :	CHEMICAL,

SCOPE OF TESTING : CHEMICAL

Material / Product Tested	**Type Of Test / Properties Measured / Range Of Measurement**	**Standard Test Methods / Equipment / Techniques**
Agricultural Products And Materials	Volatile Matter	MPOB, Ref. No . P2.1, 2004
	pH	MS 678: Part 1: 1980
	None	107- 06-2-D.
	None	Fibre Tec 2010.
	None	None
	Method of Sample Preparation	In-house Method ID T001-S based on MS 678: Part 1: 1980
	Sample preparation	MS 677: Part I(a):1980
	Ashing and Preparation of Ash Solution	MS 677: Part
	Nitrogen (N)	MS 677: Part
	None	None
	Nitrogen Ammoniacal Nitrogen -	MS 417:Part 3: 1994 Clause 5

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	None	None
	None	None
Effluent	B.O.D. (reference method + Alternative method)	None
	Total Solid	APHA 2540-B, 21st Edition
	None	None
	None	None
	Sulphate	None
	Reference Method (Except for	None
	None	None
	Biochemical Oxygen Demand	DOE Method (1985):
	Suspended Solids	DOE Method (1985) :
	Biochemical Oxygen Demand	DOE Method: 4" Edition, 2019,
	Temperature	APHA 2550B, 2005
	None	None
	None	None
	None	None
	Aluminium (Al)	None
	None	None
	None	None
	Total Dissolved Solids	APHA - 2540C
	None	APHA - 4500F-B&C
	Metals:	USEPA Method 6010D; Inductive
	Calcium as Ca	HCl Digestion)
	Sulphate as SO4	None
	Nitrite Nitrogen as N	APHA 4110B
	@ 30 °C for 3 Days	None
	None	None
	None	(by calculation)
	None	based on APHA -” 4500 Norg B, 21%
	pH	APHA 4500-H*B
	Temperature	APHA 2550 A, B
	Oxygen (Dissolved)	APHA 4500-0 G
	Free Chlorine	HACH Method 8021
	Temperature	APHA 2550 B
	pH	APHA 4500 H*B
	pH	APHA 4500 - H*B
Environmental	None	None
	None	None
	None	None
	Listeria monocytogenes	HiMotility-„¢ Biochemical Kit
	pH	ASTM D 1293-18
	None	None
	pH	ASTM D 1293-18
	None	None
	None	None
	PH value at 25 °C	*APHA 4500-H* B, 2005

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Iron (as Fe), mg/L	*APHA 3111 B, 2005
	Oil and grease	*APHA 5520 B, 2005
	Turbidity	APHA 2130B, 2017
	Metals	APHA 3030 F and APHA 3120 B
	None	on APHA 9222 J
	None	on Colilert Test Kit notes, IDEXX
	None	None
	None	None
	Aerobic Plate Count	CMMEF Chapter 3; 1992 & FDA/
	None	None
	None	None
Fertilizer	Moisture	MS 417: Part 2:1994
	Phosphorus (P)	In-House Method TOM(S)009 based
	Total P205	In-house Method (Ref. No. F3)
	None	None
	pH	In-house method TM-CR-03-005
	Calcium (as CaO)	MS 417: Part 8: 1997 / AAS
	Moisture	MS 417 : Part 2 : 1994
	Ammoniacal Nitrogen in Ammonium Chloride and Ammonium Sulphate (as % N)	MS 417 : Part 3 : 1994 (Distillation Method)
	Urea-Nitrogen (as % N)	MS 417 : Part 3 : 1994 (Urease Titration Method)
	Urea-Nitrogen (as % N)	In-house method (Ref. No. F5) Based on MS 417 : Part 3 : 1994 (Urease Titration Method)
	Nitrate-Nitrogen (as % N)	MS 417: Part 3 : 1994
	Total phosphorus (as % P20s)	Part 4: MS 417: 1994 (Method 1)
	Citric Acid Soluble Phosphorus (as %	Part 4: MS 417: 1994
	Water Soluble Phosphorus (as % P2Os)	Part 4: MS 417: 1994
	Total Potassium (as % K2O)	Part 5: MS 417: 1994
	Total Magnesium (as % MgO)	MS 417: 1994
	Boron (as %	Part 7: MS 417: 2001 (Carmine Method)
	Boron (as %	In-house method (Ref. No. F6) Based on MS 417 : Part 7 : 2001 (Azomethine Method)
	Calcium (as CaO)	MS 417 : Part 8 : 1994
	Sample Preparation	MS 417: Part 1: 1994-Clause 5
	Moisture	MS 417: Part 2: 1994-Clause 3
	Moisture	MS 417: Part 2: 1994
	None	None
	Moisture	n-house Method PBL/LTM/F1,
	Total Nitrogen	In-house method F05 based on MS ISO 13878: 2014

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Determination of Moisture	MS 417: Part 2: Clause 3, Method |:
	Total Magnesium as MgO	In-House No. FT02 (Based on
	None	None
	Determination of Phosphorus,	In-House Method, TM-02
	Total Nitrogen (as N)	In-house Method, Ref. No. F2, based
Foliar	Ash	MS 677 : Part II 1980
	None	None
	Total Nitrogen	In-house method, TM GA-FL02001,
	Magnesium (as Mg)	In-house method, TM GA-FL-02003,
Monitoring	None	None
	PH value	APHA 4500-H+, 21st Edition
	Total Nitrogen	*TN -" DOE REFERENCE METHOD
	None	(Method B)
	None	None
	None	(Method B)
	None	APHA 4500-H* B, 2017
	None	APHA 3111 B, 2017
	None	APHA 5520 B, 2017
	None	None
	Aluminium, Al	None
	Yeast Count	based on Compendium of Methods
	None	based on Compendium of Methods
	None	In-House Method SOP-ENV-006
	None	None
	None	None
	None	None
	Arsenic	None
	None	None
	Chromium, Cr	NIOSH 7024
	None	None
	Oxides Emissions from	Monitor FEM-7 V1.3)
	None	None
Palm Oil And Palm Oil	Impurities	MPOB, Ref. No . P2.2, 2004
	Determination of Fatty Acid	MPOB p3.5 : 2004
	Free Fatty Acids	AOCS Ca 5a-40 (1997)
Products	Acidity	MPOB, Ref. No . P2.5, 2004
	Total Nitrogen & Protein	STP/Chem/A03 based on AOAC 20
	None	None
	None	012-RO based on BS 12014-4:2005

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	None	None
	None	None
	(Detection)	USP 38 (Method 62)
	Salmonella (Detection)	USP 38 (Method 62)
	Escherichia coli (Detection)	USP 38 (Method 62)
	Bile - tolerant Gram Negative	USP 38 (Method 62)
	None	ASTM A 370: 2020 Clause 18
	Dimethyl Phthalate (DMP)	003 with reference to IEC 62321-
	Enumeration of	AOAC Official Method 2003.07
	Aureus	None
	None	None
	None	None
	None	Detection)
	None	Labeling, Chapter 1, 1993
	None	None
	None	None
	None	None
	Maltose & Sucrose	Labeling Method No. 980.13
	None	6590EN & LCTECH SOP, using GC-
	Deoxinevalenol, Fumonisin B1,	Analytical Toxicology, 5:2, 2014, Pg.
	None	AS 5013.4-2009 (Pour Plate Method)
	None	None
	None	PBPK/BAC 02
	Dose	None
	None	D5865-10a
	None	None
	None	None
	None	None
	None	None
	None	None
	Disturbance power from cable	CISPR 16-2-2:2010
	Nickel	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	campylobacter jejuni and C. coli)	None
	None	EN 61000-4-2:2009
	Electrical Fast Transient	IEC 61000-4-4:2012

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	electromagnetic field immunity	EN IEC 61000-4-3:2020
	None	Based on Rapid Porcine Meat (Raw)
	None	Based on Gerhardt Dumatherm
	Gelatin/Collagen	HV/TM/BCLAB/005
	Fat/Oil	HV/TM/BCLAB/003
	None	and Analysis of Foods; 9' Edition,
	real-time PCR	In-house Method IHRAM-TM-101
	None	994.10 & AOAC 976.26, 17" Edition,
	None	950.35 17 Edition, 2000
	None	None
	Density	BP: Appendix V-A246 G. Density
	None	Determination of pH
	Weight per mL at 20-25 °C	BP Appendix V G Determination of
	Limit and method of measurements	ANSI C63.4:2014
	None	None
	Carbohydrate	In-House Method CLWI-TEC-F022
	None	Agrobot, Cluj 38 (1) 2010, 44-48
	None	None
	None	None
	None	None
	None	None
	Copper	None
	Electronic Apparatus -” Safety Requirements	Except:
	Total Carbohydrate	Method of Analysis for Nutrition
	None	2005.Page 393-397
	None	None
	e	None
	None	None
	None	None
	None	None
	None	None
	Impurities	MPOB p2.2:2004
	Peroxide Value	MPOB p2.3:2004
	Acidity/FFA	MPOB p2.5:2004
	Iodine Value	MPOB p3.2:2004
	Colour Lovibond	MPOB p4.1 Part 1:2004
	Slip Melting Point	MPOB p4.2:2004
	Anisidine value	MPOB p2.4:2004
	None	Specimen Clause 6.2 -” Rigid Tubes
	API Gravity of Crude Oils by	ASTM D5002
	Density, Relative Density of API	ASTM D4052
	Yield Strength	ASTM A370-21 (Section 7 to 14)
	None	on AOAC 925.45B

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	None	None
	Butyric acid (C4:0)	None
	(cis)	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	on Mettler Toledo Ti-Note EasyPlus
	None	C (2008)
	None	None
	None	None
	Yeast & Mould	FDA-BAM Chapter 18 (Plate Count)
	None	None
	None	None
	None	None
	None	None
	Fat (Acid Hydrolysis)	n House Method TM/F-014 Based on
	Moisture	n House Method TM/F-004 Based on
	None	Examination of Foods, 4th Edition
	Vibrio parahaemolyticus	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	Coliform	FDA-BAM Chapter 4 (2020)
	Fecal Coliform	FDA-BAM Chapter 4 (2020)
	None	None
	None	AOAC 991.14 (3M Petrifilm) (2002)
	None	None
	Clostridium perfringens Count	FDA-BAM Chapter 16 (2001)
	None	None
	Dynamic Viscosity and Density	None
	and Fire Points by Cleveland	None
	Moisture Karl Fischer Reagent	ISO 8534 (M) / KF Volumeter (E) /
	Flash Point (Cleveland Open	ASTM D 92-90
	None	Gel-Clot Method
	None	None
	Test for absence of I	None
	None	None

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	None	L03-004, Based on VICAM Zearala
	None	Spectrometry (WDXRF)
	in Fruit Juices and Related	onBrause et al., Journal of AOAC
	None	Lovibond Colour in Palm Oil and Palm
	None	(CTAB Protocol) based on
	None	Conventional Polymerase Chain
	None	(HPLC)
	None	None
	Violet	In-House No.FH 38
	None	None
	None	None
	Refer Appendix III	2007.01 (GCMSMS)
	None	None
	None	None
	-35S Promoter	Detection Using Real Time PCR
	None	None
	None	None
	None	968.28
	None	None
	None	None
	None	None
	Mercury	In-house Method SOP-0217-1018,
	None	UHPLC
	None	UHPLC
	Ash	In-house Method 0510 based on
	None	AOAC 964.21
	None	None
	None	Edition, 1978
	None	None
	None	None
	None	2:2009
	Bioburden Estimation	ISO 11737-1:2006
	Sterility Test	ISO 11737-2:2009
	Endotoxin in Medical Devices	USP 29' Edition (LAL Gel Clot
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	None	None
	Bend Performance	Clause 7.2.4 e
	Lithium, Li Vanadium,V	001 with reference to USP 39 and USP 40
	None	nicotinic acid and nicotinamide in
	None	None
	phthalate, DIBP	None
	Dibutyl phthalate, DBP	006, with reference to ISO 8124-
	None	None
	None	None
	None	L03-007-Determination of Aflatoxin
	None	G03-123(1)-Detection of Maize in
	None	G03-143(1)-Detection of Event-Specific
	None	G03-143(2)-Detection of Event-Specific
	None	G03-143(3)-Detection of Event-Specific
	None	G03-143(5)-Detection of Event-Specific
	None	G03-143(4)-Detection of Event-Specific
	NoneNone	None
	None	
	None	None
	Ultimate Tensile Strength e	(ref no: QA/METAL/05)
	None	None
	Monosodium Glutamate	F024 by HPLC Fluorescence
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	Aerobic Plate Count	None
	Total Coliform Count	FDA-BAM, Ed, Chap 4
	Fecal Coliform	None
	Salmonella spp.	FDA-BAM, Ed, Chap 5
	- Sulphate	BS 1377, 1990-Part 3 Section 5
	- pH Value	BS 1377, 1990-Part 3 Section 9
	- Loss on Ignition	BS 1377, 1990-Part 3 Section 4
	Average Grain Size Measurement	Method)
	- Rockwell Method	ASTM E18: 20
	Break Test (Filled Weld)	None
	Properties Measured /	Method/
	Total Plate Count	Plating
	Coliform	Determination of Coliform & E.coli
	Escherichia Coli	(Pour Plate Method) - AOAC

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Escherichia Coli	performance tested. Certificate no.
	Escherichia Coli	020902
	Coliform	AOAC 998.08. Edition,
	Escherichia Coli (Petrifilm)	2019/Petrifilm
	Staphylococcus Aureus (Petrifilm)	AOAC 2003.11. 21% Edition,
	Staphylococcus Aureus (Petrifilm)	2019/Petrifilm
	Salmonella (Petrifilm)	AOAC 2014.01. 21% Edition, 2019/Petrifilm
	Salmonella	FDA BAM Chapter 5. 2020;
	(Alpha Tocopherol, Alpha Tocotrienol,	70, No. 12, December 1993/HPLC
	Beta Tocotrienol, Gamma Tocotrienol,	None
	Delta Tocotrienol)	None
	Phytosterols Content	EvTM_0008/HPLC
	(Sitosterol, Stigmasterol)	None
	Plant Squalene	EvTM_0007/HPLC
	Solvent Residue	EvTM_0005/GC Headspace
	(Hexane, Ethyl Acetate, Methanol,	None
	Isopropanol, Dichloromethane,	None
	Ethanol)	None
	Benzo A Pyrene	EvTM_0004, Based on AOCS Cd
	Benzo A Pyrene	21 - 91, 5"' Edition (2003)
	Moisture	AOCS Ca 2e - 84, Edition
	Moisture	(2003)
	Mixed Carotene	None
	Mixed Carotene	EvTM_0150/HPLC
	Solvent Residue	EvTM_0151/GC-HS
	(Hexane, Ethyl Acetate, Methanol,	None
	Isopropanol, Dichloromethane,	None
	Ethanol)	None
	Moisture	AOCS Ca 2e - 84, Edition
	Moisture	(2003)
	None	None
	2,6-Di-Tert-Butyl Hydroxytoluene	EvTM_0049/GC
	Tocotrienol, Beta Tocotrienol,	1993/HPLC
	Gamma Tocotrienol, Delta	None
	Tocotrienol)	None
	Benzo A Pyrene	EvTM_0114, Based on AOCS Cd 21-91, 5th Edition (2003)
	Mixed Carotene	EvTM_0115/HPLC
	Mixed Carotene	EvTM_0116/UV-VIS
	Lycopene Content	EvTM_0118/UV-VIS
	Plant Squalene	EvTM_0124/HPLC
	Phytosterols Content (Sitosterol, Stigmasterol)	EvTM_0125/HPLC
	Solvent Residue (Hexane, Ethyl Acetate, Methanol,	EvTM_0126/GC HS

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Isopropanol, Dichloromethane,	None
	Ethanol)	None
	Moisture	AOCS Ca 2e - 84, Edition
	Moisture	(2003)
	Total Aerobic Microbial Count	XVI B
	Total Combined Yeasts/ Moulds	BP 2020/Volume
	Count	XVI B
	Coliform Count	FDA BAM Chapter 4, 2020
	Bile-Tolerant Gram-Negative	BP 2020/Volume
	Bacteria	XVI B
	Detection of Specific Microorganism	BP 2020/Volume
	Pseudomonas aeruginosa	IV/Appendix XVI B
	Staphylococcus aureus	None
	Escherichia coli	None
	Salmonella spp	None
	Total Aerobic Microbial Count	XVI B
	Total Combined Yeasts/ Moulds	BP 2020/Volume
	Count	XVI B
	Coliform Count	FDA BAM Chapter 4, 2020
	Bile-Tolerant Gram-Negative	BP 2020/Volume
	Bacteria	XVI B
	Detection of Specific Microorganism	BP 2020/Volume
	Pseudomonas aeruginosa	XVI B
	Staphylococcus aureus	None
	Escherichia coli	None
	Salmonella spp	None
	None	spp. by Real-Time PCR (qPCR) -" SYBR
	None	None
	None	in Soybean by real-Time PCR (qPCR)
	None	DNA (Universal Plant) by Real-Time
	Free Fatty Acids	None
	Moisture and Volatile Matter Hot	AOCS Ca 2b-38 (1997)
	Plate Method	None
	Insoluble Impurities	AOCS Ca 3a-46 (1997)
	Iodine Value of Fats and Oils	None
	Cyclohexane-Acetic Acid	AOCS Cd 1d-92 (1997)
	Method	None
	Slip Melting Point	None
	AOCS Standard Open Tube	AOCS Cc 3-25 (1997)
	Melting Point	None
	Color	AOCS Cc (1997)
Soil	Conductivity	MS 678: Part VI: 1980
	Moisture	In-house Method SPLAB/STP/S1

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Moisture	Analysis, 2012. Loss on Drying (Moisture) in Peat. AOAC Official
	pH	MS 678:Part : 1980 (Ref. No.: S2)
	Conductivity	MS 678:Part VI : 1980 (Ref. No.: S3)
	Exchangeable Cations (Ca, Mg, K, Na)	n-house Method (Ref.No.: S8) based-on MS 678: Part IV:1980 and
	pH	Determination of soil reaction (pH),
	None	EHP Detection Kit Instruction Manual
	Determination of Moisture Content	BS 1377-2: 1990 Clause 3.2
	pH	In-house method TM-CR-03-005
	Particle Density Determination by	BS 1377: Part 2: 1990: clause 8.3
	Mechanical Analysis (Clay, Silt, Fine & Coarse Sand)	In-house method (Ref. No. S1) based on The Bouyoucos Hydrometer method for Particle Size Analysis, Texas A&M University System
	pH	MS 2457 : 2012
	Conductivity (Cond.)	MS 2458 : 2012
	Organic Carbon (Org. C)	MS 2459 : 2012
	Total Nitrogen (N)	MS 678 : Pt. to 1980, Part II
	Phosphorus (Available)	In-house method (Ref. No. S2) based on J. Sci. Fd. Agric. Vol. 21, 275-278 and MS 678: Pt. VI to IX:
	Sample Preparation	In-house Method ITC/TM/S01 based on MS 678: Part 0: 1980
	pH	MS 2457: 2012
	Nitrogen	MS 678: Part II: 1980- (a)
	Organic Carbon	MS 2469: 2012
	Total Phosphorus	In-house Method based on MS 678: Part VIII: 1980
	Available Phosphorus	In-house Method ITC/TM/S08 based on A laboratory manual of methods of Soil Analysis research Branch Agriculture Department Sarawak 1993, clause 19
	Exchangeable Cations (K,Mg,Ca)	In-house Method ITC/TM/S06 based on MS 678: Part IV: 1980
	Cation Exchange Capacity	In-house Method ITC/TM/S07 based on MS 678: Part V: 1980
	Particle Size Analysis	In-house Method ITC/TM/S10 based on ASA-SSSA, Methods of Soil Analysis 1986, Part 1, Chapter 15
	Determination of In-situ Density	BS 1377: Part 9: 1990
	2.5 kg Rammer	BS 1377-2:2022

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Clay, Silt, Fine Sand &	In-house Method, S1, Based on
	Phosphorus (total)	In-house Method, S5, Based on MS 678:Pt. VI to IX:1980, Part VIII
	Phosphorus (total)	In-house Method, S6, Based on MS 678:Pt. VI to IX:1980, Part VIII and QuikChem® Method 12-115-01-1-N
	Cation Exchange Capacity (C.E.C)	MS 678:Pt. to V:1980, Part V
	Cation Exchange Capacity (C.E.C)	In-house Method, S7, Based on MS 678:Pt. to V:1980, Part V and QuikChem® Method 13-107-06-2-D
	Total Exchangeable Bases: Potassium (K)	MS 678:Pt. to V:1980, Part IV (Flame photometry)
	Total Exchangeable Bases: Potassium (K)	In-house Method, S8, Based on MS 678:Pt. to V:1980, Part IV and QuikChem® Method 12-119-03-1-C
	Sodium (Na)	In-house Method, S9, Based on MS 678:Pt. to V:1980, Part IV
	Calcium (Ca)	MS 678:Pt. to V:1980, Part IV (Atomic Absorption Spectrophotometry)
	Magnesium (Mg)	MS 678:Pt. to V:1980, Part IV (Atomic Absorption Spectrophotometry)
	Determination of Particle Size	Part 2: MS 1056 2013 Section 10.2
	Mechanical Analysis (Clay, Silt, Fine & Coarse Sand)	In-house Method, Ref. No. S1, Based on The Bouyoucos Hydrometer Method for Particle Size Analysis,
	Arsenic (As)	None
	Determination of Electrical Conductivity in Soil Sample	In-House Method P702-07 base on MS 2458:2012
	Moisture Content Test - Oven Drying Method	MS 1056: Part 2: 2005
	Liquid Limit Test - Casagrande Method	MS 1056: Part 2: 2005
	Liquid Limit Test - Cone Penetrometer Method	MS 1056: Part 2: 2005
	Plastic Limit Test	MS 1056: Part 2: 2005
	Plasticity Index	MS 1056: Part 2: 2005
	Linear Shrinkage	MS 1056: Part 2: 2005
	Specific Gravity- Small Pyknometer Method	MS 1056: Part 2: 2005
	Particle Size Distribution -” Wet Sieving Method	MS 1056: Part 2: 2005

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Sedimentation -" Hydrometer Method	MS 1056: Part 2: 2005
	Compaction Test	MS 1056: Part 4: 2005 (Clause 4.2, 4.5, 4.6)
	Determination of pH value	BS 1377 : Part 3: 1990, Clause 9
	Determination of chloride content	BS 1377 : Part 3: 1990, Clause 7
	Determination of sulphate content	BS 1377 : Part 3: 1990, Clause 5 (Gravimetric)
	Determination of organic matter content	BS 1377 : Part 3: 1990, Clause 3
	Determination of moisture content	BS 1377 : Part 2: 1990, Clause 3.2
	Determination of particle size distribution	BS 1377 : Part 2: 1990, Clause 9.3
	Determination of In-situ Density and Moisture Content	Soils for Civil Engineering Purposes, BS 1377:1990, Part 9: Clause 2.1-Sand Replacement
	Determination of In-situ Density and Moisture Content	Soils for Civil Engineering Purposes, BS 1377:1990,
	Moisture Content	BS 1377: Part 2: 1990, Clause 3.2.4
	Moisture Content	BS 1377: Part 2: 1990, Clause 3.2
	Particle Size Distribution	BS 1377: Part 4: 1990, Clause 9.5
	Field Density Test: Core Cutter	BS 1377: Part 9: 1990, Clause 2.4
	Determination of Moisture	BS 1377:Part 2:1990 Clause 3.2
	Particle Size Distribution	BS 1377: Part 2: 1990, Clause 9.2 & 9.3
	Moisture Content	BS 1377: Part 2: 1990, Clause 3.2
	California Bearing Ratio (Soaked)	BS 1377: Part 4: 1990, Clause 7
	Dry Density / Moisture Content Relationship (4.5 kg Rammer Method)	BS 1377: Part 4: 1990, Clause 3.6
	Liquid Limit (Casagrande Apparatus Method)	BS 1377: Part 2: 1990, Clause 4.5
	None	Part 2: BS 1377 1990, Clause 5.3 & 5.4
	Dry Density / Moisture Content	Part 4: MS 1056 2005, Clause 4.5 & 4.6
	Dry Sieving Method	MS 1056 Part 2 : 2005, Clause 10.3 Part 2 : 1990, Clause 9.3 BS 1377
	Determination of Moisture Content	BS 1377: Part 2: 1990 Clause 3.2
	Moisture Content	BS 1377 Part 2: 1990 : Clause 3.2
	Liquid Limit (Cone Penetrometer Method)	BS 1377 Part 2: 1990 : Clause 4.3
	In-situ Density Test by Sand	None
	pH	MS 2457: 2012
	Electrical Conductivity	MS 2458: 2012

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Available Phosphorus	In-house method S07 based on Bray & Kurtz, 1945 & ICP-OES
	Total Nitrogen	MS ISO 13878: 2014
	Total Phosphorus	In-house method S13 based on EPA Method 3050B & ICP-OES
	Determination of Particle Density (Small Pyknometer Method)	BS 1377:1990 Part 2, Clause 8.3
	Determination of Particle Size Distribution (Dry Sieving Method)	BS 1377:1990 Part 2, Clause 9.3
	Determination of Particle Size Distribution (Wet Sieving Method)	BS 1377:1990 Part 2, Clause 9.2
	Determination of Particle Size	None
	Determination of Water Content	BS 1377: Part 2
	Determination of pH value of fine	BS 1377-3: 2018
	Determination of Soil pH	MS 678: Part - V: Part |, Soil pH:
	None	None
	Total Recoverable Elements	USEPA 200.2 Rev. 2 : 8 EMMC
	Chloride	MS 678: Part VI to
	In-situ Density Test	BS 1377: Part 9:1990 Clause 2.1
	Moisture Content	BS EN ISO 17892-1:2014
	Particle Size Distribution -" Wet	BS EN ISO 17892-4:2016
	Arsenic, Mercury, Cadmium,	EPA 3050 B
	Loss on Ignition	BS 1377 part 3: 1990 (Clause 4)
	Carbonate	BS 1377 Part 3: 1990 (Clause 6.3)
	Moisture Content	BS 1377-1: 2016
	In-situ California Bearing Ratio (CBR)	BS 1377 : Part 9 : 1990 Clause 4.3
	Moisture Content	BS 1377-1: 2016
	In-situ California Bearing Ratio (CBR)	BS 1377 : Part 9 : 1990 Clause 4.3
	pH Value	BS 1377-3:1990:9.5
	None	None
	Aluminum (Al)	USEPA 200.2, Revision 2.8, 1994
	Particle Size Distribution (gravel,	In House Method 0588 based on
	Determination of Particle Size Distribution for Soils	BS 1377: Part 2: 1990 Clause 9
	Determination of Moisture Content	BS 1377: Part 2: 1990 Clause 3.2
	Determination of the Liquid Limit (Casagrande apparatus method)	BS 1377: Part 2: 1990 Clause 4.5
	Determination of the Plastic Limit and Plasticity Index	BS 1377: Part 2: 1990 Clause 5
	Determination of dry density/moisture content relationship (Rammer Method)	BS 1377: Part 4: 1990 Clause 3.3, 3.4, 3.5 & 3.6
	Determination of dry density/moisture content relationship (Vibrating Hammer Method)	BS 1377: Part 4: 1990 Clause 3.7

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Determination of soil density test	BS 1377: Part 2: 1990 Clause 7
	Determination of The Moisture	BS 1377: Part 2:1990: Method 3.2
	Determination of In-Situ Density	BS 1377: Part 9: 1990
	Determination of The Moisture	BS 1377: Part 2:1990: Method 3.2
	Toxicity characteristic leaching	USEPA 1311: 1992
	Phosphorus, P Sulphur, S	None
	SVOCs (Refer to Appendix 2 and 3 for	EPA Method 3510C: 1996
	Determination of Moisture Content	BS 1377:2:1990, Clause 3.2 MS 1056:2:2005, Clause 4.2
	Determination of Density	BS 1377:2:1990, Clause 7.2 MS 1056:2:2005, Clause 8.2
	Linear Shrinkage	BS 1377:2:1990, Clause 6.5 MS 1056:2:2005, Clause 7.5
	Determination of Particle Density	BS 1377:2:1990, Clause 8.3 MS 1056:2:2005, Clause 9.3
	Determination of Liquid Limit Using Casagrande Method	BS 1377:2:1990, Clause 4.5 & 4.6 MS 1056:2:2005, Clause 5.5 & 5.6
	Determination of Liquid Limit Using Cone Penetrometer Method	BS 1377:2:1990, Clause 4.3 & 4.4 MS 1056:2:2005, Clause 5.3 & 5.4
	Determination of the Plastic Limit	BS 1377:2:1990, Clause 5
	Maximum dry density / Moisture content relationship	BS 1377: Part 4: 1990
	Shear Strength Test without	None
	The laboratory Vane e	BS 1377: Part 7: 1990: Clause 3
	Field Density Test (Sand Replacement Method)	BS 1377: Part 9:1990 Clause 2.1
	Plastic limit test	Test instruction reference to BS
	Moisture content	BS1377-2, Clause 4.1
Water	pH value Chloride	APHA 4500-H+, 21st Edition APHA 4500-Cl-, 21st Edition
	Nickel	None
	Strontium	None
	Fluoride	None
	None	None
	Metals	None
	None	None
	None	None
	None	None
	COD	JKM E 0019 based on APHA 5220 Open
	Calcium/Calcium Hardness	JKM E 0015 based on APHA 3500 -”
	Chemical Oxygen Demand	JKM W 0401 based on HACH Method
	Coliform (MPN/100 ml)	ISO 9308 -” 2 (2012)
	E. coli (MPN/100 ml)	ISO 9308 -” 2 (2012)
	None	None

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	None	None
	the Spores of Sulfite-Reducing Anaerobes (Clostridia) -" Part 2:	ISO 6461/2-1986 (E)
	E. Coli and Coliform	Water Quality-Enumeration of E.coli
	Intestinal enterococci	MOH (2)
	None	None
	None	None
	Coliform Count	APHA 9221 B
	E.Coli Count	APHA 9221 B, 9225
	Total Aerobic Plate Count	APHA 9215 B
	Total Fecal Coliform Count	APHA 9221 E
	Heterotrophic Plate Count	AS/NZS 4276.3.1 (2007)
	pH	APHA 4500 - H* B, 21% Edition
	Chlorine - Free	HACH 8021 and HACH 10069,
	Fluoride	APHA-4110 B, 215 Edition
	Biological Oxygen Demand, 5	APHA-5210 B, 215 Edition
	Free Chlorine MR	HACH method 10245, 5'* Edition,
	Heterotrophic Colony Count	AS 4276.3.1-1995
	Zinc Manganese	APHA 3030E, 3120B Edition 2012
	None	None
	None	None
	Determination of Organochlorine	None
	Bacillus cereus	In-house method 21BAMC-B036
	None	None
	Pseudomonas aeruginosa	In-house method 21BAMC-B064
	Total Coliforms	In-house method 21BMPN-B075
	Bacillus cereus	In-house method 21BAMC-B036
	Pseudomonas aeruginosa	In-house method 21BAMC-B064
	Total Coliforms	In-house method
	None	PCL)
	Acute Hepatopancreatic	In-house method SD?QC-WI-305 :
	None	None
	Pathogen	, , , APHA 9222A,
	None	None
	Temperature	APHA 2550 B
	Phosphorus	APHA 4500 P C
	Bromodichloromethane,	In-house Method, CL/WT/008 based
	Metals by ICP	APHA 3120 B
	Mercury	APHA 3112 B
	Chlorpyrifos	In-house Method, CL/WT/011,
	Aluminium	APHA 3125 B (ICP-MS)
	Gross Alpha, Gross Beta	ISO 11704:2018
	Heterotrophic Plate Count	APHA 9215 B (Pour Plate Method)
	pH	APHA - 4500-H B
	None	ASTM D 1293-18
	None	None

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	None	None
	None	ASTM D 1293-18
	None	None
	Turbidity	APHA 2130 B
	pH	APHA 4500 H* B 23rd Edition
	Total solid dried at 103°C -” 105 °C	APHA 2540 B (2005)
	Enumeration of Plankton	Marine Water (PBPKL-STP-PP-1)
	None	APHA 4500 Norg B (2017) and
	None	USP Chapter Bacterial
	Coliform, Fecal Coliform &	APHA 9222 B.G.H.D
	None	APHA 3111 B, 2017
	None	APHA 3111 B, 2017
	None	None
	None	from HACH Method 8023, DR3900
	PH test	APHA 4500 H*B Edition 2017)
	Total suspended solids	APHA 2540 D Edition 2017)
	Turbidity Test	APHA 2130 B Edition 2017)
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	MLSS	None
	Hydrocarbon, PAH	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	Selenium (Se) Chromium (Cr)	None
	None	None
	None	None
	None	None
	None	None
	None	None
	Ammonical Nitrogen	APHA 4500-NH3
	None	None
	Lead	APHA 3120 B
	Tin	None
	Iron	None

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Heterotropic plate count	APHA 9215 D
	Standard total coliform	APHA 9222 B
	None	None
	None	None
	pH	APHA - B
	Escherichia coli and Coliform	ISO 9308-1:2014 (E) / Enumeration by
	Bisphenol A	In-house test method MKA TMO6 based
	Total Hardness	HACH Method 8226, 8" Edition, 2015
	Hardness by Calculation	APHA 2340 B & In-house test method
	Color	HACH Method 8025, Edition, 2014
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	Determination of pH	APHA 4500-H* B, 2005
	Determination of chloride	APHA 4500-Cl B, 2005
	Determination of sulphate	APHA B, 2005
	Determination of alkalinity	APHA 2320 B, 2005
	Determination of total solids	APHA 2540 B, 2005
	pH	APHA 4500 H*B
	Color	APHA 2120 C (2017)
	Heterotrophic Plate Count	APHA 9215 B (2017
	Standard Total Coliform	APHA 9221 B (2017
	Escherichia coli	APHA 9221 F (2017)
	Examination for Legionella spp.	AS/NZS 3896:2008
	pneumophila	None
	Staphylococcus aureus count	APHA 9213 B (2017)
	Fecal Streptococcus	APHA 9230 C (2017)
	Pseudomonas aeruginosa	APHA 9213 F (2017)
	Identification of Escherichia coli	In-house Method GPS/QA/TM/001
	Identification of Shiga-toxigenic	In-house Method GPS/QA/TM/004
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	None	None
	None	None
	Ammonia	ASTM D1293
	None	None
	None	None
	None	None
	and Escherichia coli	None
	None	filtration)
	Clostridium perfringens	ISO 14189: 2013 (E)
	None	None
	None	None
	None	None
	None	(2005)
	None	21% Edition (2005)
	Colour	APHA 2120 C 2005
	Determination of Volatile	Method EPA 524.2 By Purge & Trap
	Oxygen Demand (COD) for High	APHA Method 5220D
	None	In-house Method JKM W 0502,
	None	on APHA 4110 B-”lon
	Colony Count at 36°C	JKM M 2038, ISO 6222:1999 (E)
	Intestinal Enterococci	i) WI 16 -” Sample Preparation for
	Enumeration of Clostridium	JKM M 2035
	Detection of pathogenic	JKM B 0201 Detection of pathogenic
	Identification and Quantification	JKM B 0406
	pH	APHA - 4500-H B
	None	None
	None	None
	None	None
	None	None
	Boron	HACH METHOD 8015
	None	None
	E. coli	APHA 9221 F (MPN Method)
	None	None
	Total Organic Carbon	APHA 5310 C
	Heterotropic plate count	APHA 9215 B, 22"4 Edition (2012)
	None	(Membrane Filtration Technique)
	None	None
	Metals by ICP	None
	None	None
	None	None
	None	None
	None	None
	None	None
	pH	ASTM D 1293-2005 (Method B) APHA 4500 H* B 2005/2017

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	pH	ASTM D1293-2005 (Method B) APHA 4500 H* B 2005/2017
	None	None
	Turbidity	APHA 2130B
	On-site Sampling & Testing (pH Temperature, Turbidity)	In-house Method SOP-0222-2001 & SOP-0222-2003
	Coliform	APHA 9221 B, Edition, 2005
	Heterotrophic plate count in	APHA Method 9215 D, Edition,
	None	None
	None	None
	pH Value	BS 1377-3 : 2018 Clause 12
	pH Value	BS 1377-3 : 2018 Clause 12
	None	None
	Calcium Hardness as CaCO3,	APHA 3500-Ca B, 2017
	Magnesium (by Calculation Method)	APHA 3500-Mg B, 2017
	Nitrate	APHA E, 2017
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	None	None
	Aluminium	None
	None	None
	Organochlorine Pesticide	APHA 6630 B, Edition
	Ammoniacal Nitrogen	APHA F, 24" Edition
	Arsenic	APHA 3125 B, Edition
	Mercury	In-house method, SGS-TM-ENVI-003, based on APHA 3125 B
	2,4-dichlorophenoxyacetic acid (2,4-D)	In-house method, SGS-TM-02-045, based on Agilent Application Note 5991-5731 EN (LCMSMS)
	Heavy Metals by ICP-MS	None
	Endotoxin	Test for Bacterial Endotoxin, BP 2022
	pH	APHA 4500 H*B
	Oil & Grease	APHA 5520 B
	Color	APHA 2120 B
	Color	APHA 2120 F
	pH	APHA 4500 H* B
	Turbidity	APHA 2130 B

Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Conductivity	APHA 2510 B
	None	None
	None	None
	None	None
	Escherichia coli and coliform	ISO 9308-1: 2014 (E) / Enumeration
	Pseudomonas aeruginosa	ISO 16266:2006 (E) / Detection and
	Ammonium nitrogen	BS 6068: Section 2.7:1984 ISO 5664:1984
	Chemical Oxygen Demand	BS 6068: Section 2.34:1988
	Suspended solids	BS 2690-Part 120:1981
	Dissolved solids	BS 2690-Part 121:1981
	None	ASTM D 523-82
	COD	APHA 5220 D
	None	None
	Free Chlorine	APHA' 4500 -” CI G
	Count	(Pour Plate, Spread Plate and
	Anaerobes (Clostridia)	BS 6068-4:9: 1993
	Gross Alpha & Gross Beta	None
	Arsenic as As	None
	Antimony as Sb	None
	Aluminium as Al	None
	Beryllium as Be	None
	Cadmium as Cd	None
	Chromium as Cr	None
	Lead as Pb	None
	Silver as Ag	None
	Selenium as Se	None
	Thallium as TI	None
	Mercury as Hg	In-house Method LWI-MWE 037 based on APHA 3112 B by
	Mercury as Hg	Mercury Analyser
	Nitrate	In-house Method LWI-MWE 032 based on HACH Nitrate
	Nitrate	Test Comparator
	Sulfide	HACH Method 8131
	Chlorine, Free Residual	In-house Method LWI-MWE
	Chlorine, Free Residual	034 based on DPD-Palintest
	Chlorine, Free Residual	Test Comparator
	Total Chlorine	In-house Method LWI-MWE
	Total Chlorine	035 based on DPD-Palintest
	Total Chlorine	Test Comparator
	Colour (ADMI)	APHA 2120 F
	Heterotrophic Plate Count	None
	Pseudomonas aeruginosa	In-house Method LWI-MME (APHA) 007
	Pseudomonas aeruginosa	based on APHA 9213 E, 2020

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Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
	Escherichia coli and Coliform	Escherichia coli and Coliform Bacteria. Part 1: Membrane filtration
	Escherichia coli and Coliform	method
	Escherichia coli and Coliform	Method No: MOH (1)
	Escherichia coli and Coliform	ISO 29981 : 2010 (E), IDF 220 :
	Escherichia coli and Coliform	2010 (E) Milk Products -
	None	None
	None	None
	None	None
	None	None