Issue date: 25 September 2022
Valid until: 17 December 2024

NO: SAMM 752
(Issue 3, 25 September 2022 replacement of SAMM 752 dated 24 August 2021)

LABORATORY LOCATION: (PERMANENT LABORATORY)

MY CO2 (JB) SDN. BHD.
15, JALAN MOLEK 1/8
TAMAN MOLEK
81100, JOHOR BAHRU, JOHOR
MALAYSIA

FIELDS OF TESTING: **CHEMICAL, MICROBIOLOGY**

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 – Potable & Domestic Water, Ground Water, Mineral Water, Reverse Osmosis Water, Industrial / Cooling Purposes, Steam Raising / Boiler Water, Swimming Pool Water & SPA, Surface Water, drinking Water, Industrial effluent, Sewage & waste water, River water, cooling tower water, and swimming pool water, ice water, steam water	pH	APHA 4500 – H^+ B (2005)
	Biological Oxygen Demand (BOD)	APHA 5210 - B (2005)
	Dissolved Oxygen	APHA 4500- OG (2005)
	Chemical Oxygen Demand (COD)	APHA 5220 D (2005)
	Suspended Solid	APHA 2540 D (2005)
	Oil and Grease	APHA 5520 B (2005)
	Temperature	APHA 2550 B (2005)
	Chromium Hexavalent	APHA 3500 – Cr B (2005)
	Cyanide	APHA 4500 CN^- C & E (2005)
	Formaldehyde	USEPA 8315A (1996)
	Fluoride	APHA 4500 F – D (2005)
	Phenol	MY/STP/069 based on APHA 5530 B & APHA 5530 D (2005)
	Free Chlorine	APHA 4500 Cl-G (2005)
Drinking water, portable water, raw water, sewage, industrial effluent, surface water and waste water	Mercury	In house MY/STP/402 based on APHA 3030F, 3114C & 3120B (2005)
Raw water, sewage, industrial effluent and waste water	COD (Titration)	APHA 5220 C (2005)

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Water – Potable & Domestic Water, Ground Water, Mineral Water, Reverse Osmosis Water, Industrial / Cooling Purposes, Steam Raising / Boiler Water, Swimming Pool Water & SPA, Surface Water, drinking Water, Industrial effluent, Sewage & waste water, River water, cooling tower water, and swimming pool water, ice water, steam water	Sulfide	APHA 4500 – S^{2-} D (2005)
	Tin,Strontium,Lithium	MY/STP/225 based on APHA 3120B (2005) & APHA 3030 F (2005)
	Antimony	APHA 3030 F (2005) & APHA 3120 B (2005)
	Aluminium	
	Arsenic	
	Barium	
	Beryllium	
	Boron	
	Cadmium	
	Calcium	
	Total Chromium	
	Cobalt	
	Copper	
	Iron	
	Lead	
	Magnesium	
	Manganese	
	Molybdenum	
	Nickel	
	Potassium	
	Selenium	
	Silver	
	Silicone	
	Sodium	
	Thallium	
	Vanadium	
	Zinc	

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Method/ Equipment/Techniques
Water – Potable & Domestic Water, Ground Water, Mineral Water, Reverse Osmosis Water, Industrial / Cooling Purposes, Steam Raising / Boiler Water, Swimming Pool Water & SPA, Surface Water, drinking Water, Industrial effluent, Sewage & waste water, River water, cooling tower water, and swimming pool water, ice water, steam water	Ammonia/ Nitrogen	APHA 4500 NH_3 B & C (2005)
	Colour(ADMI)	APHA 2120 F (2005)
	Anionic surfactant-Detergent MBAS	APHA 5540C (2005)
	Chloride	APHA 4500 – Cl^- D (2005)
	Turbidity	APHA 2130 B (2005)
	Hardness	APHA 2340 C (2005)
	Nitrite	APHA 4500-NO2 B (2005)
	Sulphate	APHA 4500 – SO_4^{2-} D (2005)
	Total Dissolved Solid	APHA 2540 C (2005)
	Mineral oil	APHA 5520 F (2005)
Portable water, ice water, drinking water, Reverse Osmosis Water, Mineral water, steam water	Organochlorine Pesticide – • Aldrin • Gamma-BHC • Heptachlor • Heptachlor epoxide • Dieldrin • 4,4'-DDT • 4,4'-DDD • 4,4' DDE • Endrin • Endosulfan • Hexachlorobenzene (Alpha, Beta and Delta) • Methoxychlor	APHA 6630 D (2005)
	Nitrate	APHA 4500-NO3 B (2005)
Drinking water, portable water, raw water, sewage, industrial effluent, surface water and waste water	Conductivity	APHA 2510B (2005)
	Colour	APHA 2120B (2005)

SCOPE OF TESTING: CHEMICAL

Materials/Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Method/ Equipment/Techniques
Animal Feedstuff	Protein/ Nitrogen	AOAC 988.05, 20th edition
	Moisture	AOAC 930.15, 20th edition
	Ash	AOAC 942.05, 20th edition
	Crude Fibre	AOAC 978.10, 20th edition
	Crude Fat	AOAC 920.39, 20th edition
Coffee powder & Tea beverage	Caffeine & Coffee Content	MS 1360: 1994
All types of food and food related samples • Foods • Alcoholic Beverages • Dairy Products • Edible Oils, Fats & their Product • Egg & Egg Products • Essential Nutrients including Vitamins • Fish & Fish Products • Flour & Confectionery • Food Additives & Supplement • Honey & Honey Products • Infant Foods • Meat, Poultry & Derived Products • Non-alcoholic Beverages • Nut, Fruit & Vegetables and Derived Products • Pet Foods • Sauces, Herbs, Spices and Condiments • Sugars & Sugar Products	Protein/ Nitrogen	MY/STP/270 based on AOAC 988.05, 20th edition
	Moisture	MY/STP/271 based on AOAC 931.04, 20th edition
	Total Fat	MY/STP/265 based on AOAC 963.15, 20th edition
	Fatty Acids Composition (Monounsaturated Fat, Polyunsaturated Fat, Saturated Fat, Trans Fat)	MY/STP/090 based on AOAC 969.33, 20th Edition & AOAC 963.22, 20th edition
	Total Sugar	MY/STP/089 based on AOAC 968.28, 20th edition
	Energy / Calories	Guide to Nutrition Labelling and Claims page 10 & 14
	Carbohydrate	Guide to Nutrition Labelling and Claims page 10 & 14
	Vitamin C	MY/STP/145 based on GB 5413.18-2010
	Vitamin A	MY/STP/128 based on GB 5413.9-2010
	Vitamin E	MY/STP/415 based on GB 5413.9-2010
	Cholesterol	MY/STP/131 based on J AOAC Vol. 78, No. 6, 1995

SCOPE OF TESTING: CHEMICAL

Materials/Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Method/ Equipment/Techniques
All types of food and food related samples • Foods • Alcoholic Beverages • Dairy Products • Edible Oils, Fats & their Product • Egg & Egg Products • Essential Nutrients including Vitamins • Fish & Fish Products • Flour & Confectionery • Food Additives & Supplement • Honey & Honey Products • Infant Foods • Meat, Poultry & Derived Products • Non-alcoholic Beverages • Nut, Fruit & Vegetables and Derived Products • Pet Foods • Sauces, Herbs, Spices and Condiments • Sugars & Sugar Products	Total Dietary Fibre	MY/STP/030 based on SCC Technical Bulletin No. TDFAB
	Cadmium	MY/STP/264 based on AOAC 999.11, 20th edition
	Lead	MY/STP/264 based on AOAC 999.11, 20th edition
	Mercury	MY/STP/023 based on AOAC 971.21, 20th edition
	Tin	MY/STP/029 based on AOAC 985.16, 20th edition
	Arsenic	MY/STP/025 based on AOAC 971.21, 20th edition
	Sodium	MY/STP/009 based on AOAC 968.08, 20th edition
	Calcium	MY/STP/009 based on AOAC 968.08, 20th edition
	Iron	MY/STP/009 based on AOAC 968.08, 20th edition
	Benzoic Acid	MY/STP/110 based on JAOAC Vol. 70, No. 5, 1987
	Sorbic Acid	MY/STP/110 based on JAOAC Vol. 70, No. 5, 1987
	Sulphur Dioxide	MY/STP/040 based on Velp Scientifica manual UDK 126 D

FIELD OF TESTING: CHEMICAL

Materials / Products tested	Type of tests / Properties measured / Range of measurement	Standard test methods / Equipment / Techniques
All types of food and food related samples • Foods • Liquid and Semi-liquid Foods, beverages, sauces, pastes, honey, edible oils, fats and their products • Dairy products • Nutritional foods, Infant foods, food supplements • Flour and confectionery • Meat, poultry and derived products • Nut, fruit and vegetables and derived products • Herbs, spices and condiments	Ash	In house MY/STP/272 based on AOAC 942.05, 20th Ed
	Total Carbohydrate (by Calculation)	US FDA 21 CFR101.9 Part 101
	Energy/Calories (by Calculation)	US FDA 21 CFR101.9 Part 101
	Antimony	In house MY/STP/406 based on AOAC 999.11, 20th Ed
Solid, Liquid and Semi-liquid Foods - beverages, sauces and pastes, nutritional foods	Salt / Sodium Chloride	In house MY/STP/403 based on Metrohm Manual Method 21 D 3
Milk Powder and Milk Product	Mojonnier Fat	AOAC 932.06, 20th Edition
Milk	Mojonnier Fat	AOAC 989.05, 20th Edition
Nutritional and dietary supplement, pharmaceutical, traditional medicine	Lead, Cadmium	In house MY/STP/411 based on FDA EAM Section 2.3.1 & USP <233>
	Mercury, Arsenic	In house MY/STP/412 based on FDA EAM Section 2.3.1 & USP <233>

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SCOPE OF TESTING: CHEMICAL

Materials/Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Method/ Equipment/Techniques
• Palm Oil & Palm Oil Products • Edible Oils and related products	Moisture and Volatile Matter	MPOB P2.1 Part 1: 2004
	Impurities	MPOB P2.2: 2004
	Peroxide Value	MPOB P2.3: 2004
	Acidity / Free Fatty Acid	MPOB P2.5: 2004
	Saponification Value	MPOB P3.1: 2004
	Unsaponificable Matter	MPOB P2.7: 2004
	Iodine Value	MPOB P3.2: 2004
	DOBI of CPO	MPOB P2.9: 2004
	Cold Test	MPOB P4.7: 2004
	Ash	MPOB P3.6: 2004
	Apparent Density	MPOB P4.5: 2004
	Soap Content	MPOB P2.13: 2004
	Total Fatty Matter (By Calculation)	MPOB P3.7: 2004
	Mineral Oil (Qualitative)	AOAC 945.102, 20th Edition
	Cloud point	AOCS Cc6-25
	Refractive index	AOCS Cc7-25
	Phosphorus	AOCS Ca 12-55
	Slip melting point	AOCS Cc 3-25:2009
	Colour	MPOB P4.1:2004

SCOPE OF TESTING: CHEMICAL

Materials/Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Method/ Equipment/Techniques
Food Products	Sudan I, II, III, IV & Para Red	Government Chemist Publication List: LGC/GC/2007/005
	Vitamin D	MY/STP/380 based on GB 5413. 9-2010
Pet Food, Feed & Food Products	Potassium	In House Method MY/STP/372 Based On AOAC 985.01, 20th Ed
Feed & Food Products	Added Sugar (as sucrose)	In House Method MY/STP/377 Based On AOAC 968.28, 20th Ed
Cosmetics	Lead, Cadmium	In House Method MY/STP/401 Based On AOAC 999.11, 20th Ed
	Mercury, Arsenic	In House Method MY/STP/400 Based On AOAC 971.21, 20th Ed
Wire/ Wire Rod	Zinc, Aluminium	ASTM E1277-08

SCOPE OF TESTING: CHEMICAL

Materials/Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Method/ Equipment/Techniques
Foods: • Dairy Products • Edible oils, fats and their products • Flour and confectionery • Honey and honey products • Meat, poultry and derived products • Non-alcoholic beverages • Nuts and derived products • Sauces, herbs, spices and condiments • Liquid and semi-liquid foods	Available Carbohydrate (By Differences)	In House Method MY/STP/420 based on Protocol for Sampling and Method of Analysis for Malaysian Food Composition Database, Part III, Clause 3.3 1: Proximate Analysis.
Drinking water, Mineral water, Deionized water, Portable water, River water, Ground water, Raw and Treated water	Bromoform Chloroform Bromodichloromethane Dibromochloromethane Styrene	In House Method MY/STP/320 based on APHA 6200 B (2012) & Journal of Chromatography A, 1181 (2008) 116 - 124
Fertilizers	Moisture	MS 417:Part 2:1994 (Oven Method)
	Total Nitrogen	MS 417:Part 3:2020 (Modified Comprehensive Nitrogen Method)
	Ammoniacal Nitrogen	MS 417:Part 3:2020 (Distillation Method)
	Total Phosphorus (as P205)	MS 417:Part 4:2020 (Spectrophotometric molybdovanadophosphate method)
	Water Soluble Phosphorus P205	MS 417:Part 4:2020 (Shaking method)
	Citric Soluble Phosphorus P205	MS 417:Part 4:2020
	Potassium (as K20)	MS 417:Part 5:2020 (Inductively coupled plasma spectrometry (ICP) method)
	Magnesium (as MgO)	MS 417:Part 6:2020: (Inductively coupled plasma spectrometry (ICP) method)
	Boron (as B_2O_3)	MS 417:Part 7:2020 (Inductively coupled plasma spectrometry (ICP) method)

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Signatories:

1.	**Nur Shuhaiza bt Abdul Razak**	**IKM No. L/1866/6158/12**
2.	**Dr. Woo Fong Yen**	**IKM No. M/4531/7510/16**
3.	**Nurul Safira binti Md Khalid**	**IKM No. M/5228/8565/19**
4.	***Ooi Kah Wai**	**IKM No. L/2452/7352/16**
5.	*** Chong Moi Me**	**IKM No. A/1845/4189/01**

**Non-resident Signatory*

SCOPE OF TESTING: MICROBIOLOGY

Materials/Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Method/ Equipment/Techniques
All types of food and food related samples • Foods • Alcoholic Beverages • Dairy Products • Edible Oils, Fats & their Product • Egg & Egg Products • Essential Nutrients including Vitamins • Fish & Fish Products • Flour & Confectionery • Food Additives & Supplement • Honey & Honey Products • Infant Foods • Meat, Poultry & Derived Products • Non-alcoholic Beverages • Nut, Fruit & Vegetables and Derived Products • Pet Foods • Sauces, Herbs, Spices and Condiments • Sugars & Sugar Products	Aerobic Plate Count	FDA – BAM Chapter 3
	Total Yeast & Mold Count	FDA – BAM Chapter 18
	Coliform (Solid Medium Method)	FDA – BAM Chapter 4
	Coliform (MPN Method)	FDA – BAM Chapter 4
	E.coli (Solid Medium Method)	FDA – BAM Chapter 4
	E.coli (MPN Method)	FDA – BAM Chapter 4
	Salmonella	FDA – BAM Chapter 5
	Enterobacteriaceae (Petrifilm Method)	AOAC 2003.01, 20th Edition
	Staphylococcus aureus	FDA – BAM Chapter 12
	Bacillus cereus	FDA – BAM Chapter 14
	Clostridium perfringens	FDA – BAM Chapter 16
	Vibrio cholerae	FDA – BAM Chapter 9
	Vibrio parahaemolyticus	FDA – BAM Chapter 9
	Listeria monocytogenes	FDA – BAM Chapter 10

SCOPE OF TESTING: MICROBIOLOGY

Materials/Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Method/ Equipment/Techniques
All types of food and food related samples • Foods • Alcoholic Beverages • Dairy Products • Edible Oils, Fats & their Product • Egg & Egg Products • Essential Nutrients including Vitamins • Fish & Fish Products • Flour & Confectionery • Food Additives & Supplement • Honey & Honey Products • Infant Foods • Meat, Poultry & Derived Products • Non-alcoholic Beverages • Nut, Fruit & Vegetables and Derived Products • Pet Foods • Sauces, Herbs, Spices and Condiments • Sugars & Sugar Products	*Clostridium botulinum*	FDA – BAM Chapter 17
	Enumeration of Yeast and Mold	AOAC 2014.05 20th Ed, 2016
	Colony Count at 30°C by Pour Plate Technique (Aerobic Plate Count)	ISO 4833-1:2013
	Enumeration of *Coliform*	ISO 4832:2006
	Enumeration of β-Glucuronidase-Positive *Escherichia coli*	ISO 16649-2:2001
	Enumeration of Coagulase-Positive Staphylococci (*Staphylococcus aureus* and other species)	ISO 6888-1:1999
	Enumeration of Enterobacteriaceae	ISO 21528-2:2004
	Detection of *Salmonella* spp.	ISO 6579:2002
	Enumeration of Yeast and Mold (water activity >0.95)	ISO 21527-1:2008
	Enumeration of Yeast and Mold (water activity ≤0.95)	ISO 21527-2:2008

FIELD OF TESTING: MICROBIOLOGICAL

Materials / Products tested	Type of tests / Properties measured / Range of measurement	Standard test methods / Equipment / Techniques
All types of food and food related samples • Foods • Alcoholic beverages • Dairy products • Edible oils, fats and their products • essential nutrients including vitamins • fish & fish products • flour and confectionery • food additives and supplements • honey and honey products • infant foods • meat, poultry and derived products • non-alcoholic beverages • nut, fruit and vegetables and derived products • pet foods • sauce, herbs, spices and condiments • sugar and sugar products	Aerobic Plate Count	In house MY/STP/407 based on GB 4789.2-2010
	Total Yeast and Mould	In house MY/STP/396 based on GB 4789.15-2010
	Coliform Count (Solid Medium Method and MPN Method)	In house MY/STP/397 based on GB 4789.3-2010
	Escherichia coli (MPN Method)	In house MY/STP/398 based on GB 4789.38-2012
	Staphylococcus aureus	In house MY/STP/399 based on GB 4789.10-2010
	Salmonella	In house MY/STP/404 based on GB 4789.4-2010
	Fecal Coliform (MPN Method)	FDA - BAM Chapter 4

SCOPE OF TESTING: MICROBIOLOGY

Materials/Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Method/ Equipment/Techniques
Water, Waste Water, Portable Water & Drinking Water	Total Plate Count / Heterotrophic Plate Count	APHA 9215 B (2005)
	Total Plate Count (Membrane Filtration)	APHA 9215 D (2005)
	Total Coliform (Membrane Filtration)	APHA 9222 B (2005)
	Fecal Coliform / *E.coli*	APHA 9222 D (2005)
	E.coli (Multiple Tube Method)	APHA 9221 F (2005)
	Total Coliform (Multiple Tube Method)	APHA 9221 B (2005)
	Legionella spp including *Legionella pneumophilla*	AS/ NZS 3896: 2008
Microbiological Monitoring (Environmental Monitoring, Air & Work Surfaces)	Air monitoring for total bacteria, total fungus count by cascade impactor	MY/STP/185 based on NIOSH method 0800 (Issue 1: 15 Jan 1998)
	Swab contact method	MY/STP/175 based on Compendium of Methods for The Microbiological Examination of Foods, 4th Edition 2001 (Chapter 3)
	Sedimentation Method	MY/STP/175 based on Compendium of Methods for The Microbiological Examination of Foods, 4th Edition 2001 (Chapter 3)

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard test Method/ Equipment/Techniques
Nutritional and dietary supplement, pharmaceutical, traditional herbal medicine, toiletries and cosmetic.	*E.coli*	BP 2020 (Appendix XVI B & F)
	Salmonella	BP 2020 (Appendix XVI B & F)
	Staphylococcus aureus	BP 2020 (Appendix XVI B)
	Bile-tolerant gram-negative bacteria / Enterobacteriaceae	BP 2020 (Appendix XVI B & F)
	Pseudomonas aeruginosa	BP 2020 (Appendix XVI B)
	Total Aerobic Microbial Count – Plate Count Method	BP 2020 (Appendix XVI B)
	Total Yeast & Mould Count – Plate Count Method	BP 2020 (Appendix XVI B)
Canned Food	Thermophilic Bacteria	FDA – BAM Chapter 21
	Anaerobic Organisms	FDA – BAM Chapter 21
	Leakage Organisms	FDA – BAM Chapter 21

Signatories:

1. Dewelli Mohd Amin MJMM 0327

Notes:

1. APHA: American Public Health Association, Standard Method for Examination of Water and Wastewater, 21st Edition, 2005
2. AOAC: Official Methods of Analysis of AOAC International
3. ASTM : American Society for Testing & Materials
4. BP: British Pharmacopeia
5. FDA-BAM: US Food and Drug Administration / Bacteriological Analytical Manual
6. FDA EAM: US Food and Drug Administration - Elemental Analysis Manual
7. GB: National Food Safety of People's Republic of China
8. JAOAC: Journal of AOAC International
9. MPOB: Malaysia Palm Oil Board
10. MS: Malaysia Standard
11. NIOSH: National Institute of Occupational Safety & Health
12. USEPA: United States Environmental Protection Agency
13. USP: United States Pharmacopeia

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SCOPE OF TESTING: MICROBIOLOGICAL

Materials/Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Method/ Equipment/Techniques
Water Ground water River water Portable water Treated water Raw water Swimming pool water Deionized water Mineral water Drinking water Dialysis water Reverse osmosis water Cooling tower water	*Clostridium perfringens*	BS ISO 14189:2013 (Membrane Filtration)
	Fecal streptococci / Enterococci	APHA 9230 C (2012) (Membrane Filtration)
	Pseudomonas aeruginosa	APHA 9213 E (2012) Membrane Filtration)
	Sulfite-reducing anaerobes (Clostridia)	BS ISO 26461-2 1993 (Membrane Filtration)
	Fecal Coliform	APHA 9221 E (2005) (Multiple Tube Method)

Notes:

APHA: American Public Health Association
GB: Chinese National Standards
BS: British Standard
MS: Malaysia Standard

Signatories:

1. Dewelli Mohd Amin MJMM 0327