Issue date: 24 August 2026
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NO: SAMM 062
(Issue 5, 24 August 2026 replacement
of SAMM 062 dated 7 August 2026)

LABORATORY LOCATION/ CENTRAL OFFICE:	**SPECTRUM LABORATORIES SDN. BHD.** **LOT 14 (PT 5015)** **JALAN PENDAMAR 27/90, SEKSYEN 27** **40400 SHAH ALAM,** **SELANGOR** **MALAYSIA**
FIELD(S) OF TESTING:	**CHEMICAL, MECHANICAL & 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).

CENTRAL LOCATION:	**SPECTRUM LABORATORIES SDN. BHD.** **LOT 14 (PT 5015)** **JALAN PENDAMAR 27/90, SEKSYEN 27** **40400 SHAH ALAM,** **SELANGOR** **MALAYSIA**
FIELD(S) OF TESTING:	**CHEMICAL, MECHANICAL & MICROBIOLOGY**

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring Effluent and Water	Arsenic as As	APHA 3114 C, 2005
	Biochemical Oxygen Demand (BOD_5) 5 days @ 20 ˚C	APHA 5210 B & APHA 4500-O G, 2005
	Chemical Oxygen Demand (COD)	APHA 5220 B, 2005 APHA 5220 C, 2005 APHA 5220 D, 2005
	Boron as B	APHA 4500-B C, 2005
	Calcium as Ca	APHA 3111 B, 2005
	Chromium, Hexavalent	APHA 3500-Cr B, 2005
	Chromium,Trivalent	In-house method No. 1 based on APHA 3500 Cr B
	Chromium,Total	APHA 3111 B, 2005
	Cadmium as Cd	APHA 3111 B, 2005

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring (continued) Effluent and Water	Copper as Cu	APHA 3111 B, 2005
	Cyanide as CN	APHA 4500-CN C & F, 2005 APHA 4500-CN C & E, 2005
	Free Chlorine as Cl_2	APHA 4500-Cl F, 2005
	Iron as Fe	APHA 3111 B, 2005
	Lead as Pb	APHA 3111 B, 2005
	Magnesium as Mg	APHA 3111 B, 2005
	Manganese as Mn	APHA 3111 B, 2005
	Mercury as Hg	APHA 3112 B, 2005
	Nickel as Ni	APHA 3111 B, 2005
	Oil & Grease	APHA 5520 B, 2005
	pH	APHA 4500-H^+ B, 2005
	Phenols	APHA 5530 B & C, 2005 APHA 5530 B & D, 2005 In-house method No. 3 based on USEPA 420.2
	Potassium as K	APHA 3111 B, 2005
	Sodium as Na	APHA 3111 B, 2005
	Sulphide as S^{2-}	APHA 4500-S^{2-} F, 2005
	Suspended Solids	APHA 2540 D, 2005
	Selenium as Se	APHA 3114 C, 2005
	Tin as Sn	APHA 3114 C, 2005
	Zinc as Zn	APHA 3111 B, 2005
	Ammonia as N (or NH_3)	APHA 4500-NH_3-B, C, 2005 APHA 4500-NH_3 F, 2005 APHA 4500-NH3 G, 2005

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring (continued)		
Effluent and Water	Kjeldahl Nitrogen	APHA 4500-Norg B & APHA 4500- NH_3-C
	Formaldehyde	HACH SPECTROPHOTOMETER Method 8110
	Metals by Inductively Coupled Plasma (ICP) Method: Aluminium as Al Antimony as Sb Arsenic as As Barium as Ba Beryllium as Be Boron as B Cadmium as Cd Calcium as Ca Chromium as Cr,Total 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 Potassium as K Sodium as Na Selenium as Se Silver as Ag Strontium as Sr Silica as SiO2 Thallium as TI Vanadium as V Zinc as Zn	APHA 3120 B, 2005
	Aluminium as Al	APHA 3500-Al B, 2005
	Antimony as Sb	In-house method No. 2 based on APHA 3114 C
	Antimony as Sb	APHA 3111 B, 2005
	Bismuth as Bi	APHA 3111 B, 2005
	Cobalt as Co	APHA 3111 B, 2005

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring (continued)		
Effluent and Water	Gold as Au	APHA 3111 B, 2005
	Lithium as Li	APHA 3111 B, 2005
	Phosphorus as P (or PO_4)	APHA 4500-P B & C, 2005 APHA 4500-P, B, F, 2005
	Silver as Ag	APHA 3111 B, 2005
	Strontium as Sr	APHA 3111 B, 2005
	Colour	APHA 2120 B, 2005 APHA 2120 F, 2005
	Turbidity	APHA 2130 B, 2005
	Acidity as $CaCO_3$	APHA 2310 B, 2005
	Alkalinity as $CaCO_3$	APHA 2320 B, 2005
	Hardness (Calculation) as $CaCO_3$	APHA 2340 B, 2005
	Hardness (EDTA) as $CaCO_3$	APHA 2340 C, 2005
	Conductivity	APHA 2510 B, 2005
	Chloride as Cl^-	APHA 4500-Cl- C, 2005
	Fluoride as F	APHA 4500-F D, 2005
	Nitrite as N/ as NO_2	APHA 4500-NO_2 B, 2005 APHA 4500-NO_3 F, 2005
	Nitrate as N/ as NO_3	APHA 4500 NO_3 B,2005 APHA 4500-NO_3 F, 2005
	Silica as SiO_2	APHA 4500-SiO_2 D, 2005
	Silicon as SiO_2	APHA 4500-SiO_2 C, 2005

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring (continued) Effluent and Water	Sulphate as SO_4	APHA 4500-SO_4 E, 2005
	Dissolved Oxygen	APHA 4500-O G, 2005
	Total Solids	APHA 2540 B, 2005
	Total Dissolved Solids	APHA 2540 C, 2005
	Anionic Detergent as MBAS	APHA 5540 C, 2005
	Bicarbonate Alkalinity Carbonate Alkalinity Hydroxide Alkalinity Free Carbon dioxide & Total Carbon dioxide	APHA 4500 CO2-D, 2005
	Hexavalent Chromium as Cr^{6+}	EPA 7196 A
	Preliminary Treatment of Samples	
	Nitric Acid Digestion	APHA 3030 E, 2005
	Nitric Acid-Hydrochloric Acid Digestion	APHA 3030 F, 2005
	Nitric Acid-Sulphuric Acid Digestion	APHA 3030 G, 2005

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring (continued)	**Trihalomethanes** Chloroform Dichlorobromomethanes Bromoform Dibromochloromethanes	APHA 6232 C, 2005
Effluent and Water	**Volatile Organic Compounds** Benzene Toluene Ethylbenzene o-Xylene m-Xylene p-Xylene Total Xylene	APHA 6200, 2005

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring		
• Palm Oil Mill Effluent • Rubber	Biochemical Oxygen Demand	DOE Malaysia Alternative Method, 2nd Edition, 1995
	Chemical Oxygen Demand	DOE Malaysia Reference Method, 2nd Edition, 1995
	Suspended Solids	DOE Malaysia Alternative Method, 2nd Edition, 1995
	Oil & Grease	DOE Malaysia Reference Method, 2nd Edition, 1995
	Ammoniacal Nitrogen	DOE Malaysia Reference Method, 2nd Edition, 1995
Sewage Water	pH	APHA 4500-H^+ B
	Temperature	APHA 2550 B
	Chemical Oxygen Demand	APHA 5220 C
	Biochemical Oxygen Demand	APHA 5210 B & APHA 4500 O-G
	Total Suspended Solids	APHA 2540 D
	Ammoniacal Nitrogen	APHA 4500-NH_3-B, C
	Phosphorus as P (or PO_4)	APHA 4500-P B & C
	Oil & Grease	APHA 5520 B
Mixed Liquor	Total Suspended Solids	APHA 2540 D
	Volatile Suspended Solids (550 ˚C)	In-house method MLVSS based on APHA 2540 E
Polymers		
Plastic Material	Cadmium as Cd	BS EN 1122 B - 2001

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SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring • Sediments, Sludges & Soils • Solid wastes	**Preliminary Treatment of Samples** **Metals by Acid Digestion** Cadmium as Cd Chromium as Cr Copper as Cu Iron as Fe Manganese as Mn Nickel as Ni Lead as Pb Zinc as Zn	EPA 3050 B - 1996 APHA 3111B, 2005
	Metals by Microwave Digestion Cadmium as Cd Chromium as Cr Copper as Cu Iron as Fe Manganese as Mn Nickel as Ni Lead as Pb Zinc as Zn	EPA 3052 - 1996/ APHA 3111 B EPA 3052 - 1996/ APHA 3120 B
	Moisture Content Hexavalent Chromium as Cr^{6+}	In House-Solid-01 EPA 3060A - 1996/ EPA 7196A – 1992

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Note:

GC	:	Gas Chromatography
EPA	:	Environment Protection Agency, United States of America
APHA	:	Standard Methods for the Examination of Water and Wastewater; American Public Health Association, American Water Works Association and Water Environment Federation, 21st Edition (2005)
OSRMA	:	Official, Standardised & Recommended Methods of Analysis, 2nd Edition, 1973; Society of Analytical Chemistry
BS EN	:	European Standards
AAS	:	Atomic Absorption Spectrophotometer
ICP	:	Inductively Coupled Plasma

SCOPE OF TESTING: CHEMICAL

SITE: CATEGORY I

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring Ambient Air	Total Suspended Particulates (TSP) High Volume Sampler Gravimetric Method	AS 2724.3 – 1984
	Total Suspended Particulates (TSP) MiniVol TAS – Gavimetric Method	In-house method- Air-03 based on manufacturer method (Air Metrics; MiniVol TAS)
	Suspended Particulate Matter (PM_{10}) High Volume Sampler with Selective Size Inlet	AS 3580.9.6
	Determination of Particulates Matter (10 µm) (PM_{10}) MiniVol TAS – Gravimetric Method	In-house method- Air-04 based on manufacturer method (Air Metrics, MiniVol TAS)
	Determination of Particulates Matter (2.5 µm) ($PM_{2.5}$) MiniVol TAS – Gravimetric Method	In-house method- Air-05 based on manufacturer method (Air Metrics, MiniVol TAS)
	Particulate Lead (Pb) Nitrogen Dioxide (NO_2) Sulphur Dioxide (SO_2)	AS 2800 - 1985 ISC Method 408 ISC Method 704A

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SCOPE OF TESTING: CHEMICAL

SITE: CATEGORY I

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring (continued) Ambient Air	**Particulate Heavy Metals (High Volume Sampler Collection)** Cadmium as Cd Chromium as Cr Copper as Cu Iron as Fe Manganese as Mn Nickel as Ni Zinc as Zn	In-house method- Air-01 based on AS 2800 - 1985/ APHA 3111 B, 2005
	Aluminium as Al	In-house method- Air- 02 based on AS 2800- 1985/ APHA 3120 B, 2005
	Determination of Ozone (O_3) in the atmosphere	APHA ISC 820
	Determination of Carbon monoxide (CO) in atmosphere	ASTM D 4599-90
Effluent and Water	pH	APHA 4500-H^+ B, 2005
	Temperature	APHA 2550 B, 2005
	Dissolved Oxygen	APHA 4500-O G, 2005
	Conductivity	APHA 2510 B, 2005
	Turbidity	APHA 2130 B, 2005

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SCOPE OF TESTING: MECHANICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring Vibration Measurement	Measurement of Vibration Level of Construction, Open Site & Building	In-house method-Vibration-01 based on Manufacturer method
Noise	Environment Noise Level	ISO 1996-1 ISO 1996-2

SCOPE OF TESTING: CHEMICAL

SITE: CATEGORY I

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental Monitoring		
Flue Gas	Determination of Particulate Emissions from Stationary Sources	EPA 40, CFR 60, App. A, Method 5
	Determination of Sulfur Dioxide Emissions from Stationary Sources	EPA 40, CFR 60, App. A, Method 6
	Determination of Nitrogen Oxide Emissions from Stationary Sources	EPA 40, CFR 60, App. A, Method 7
	Determination of Sulfuric Acid Mist and Sulfur Dioxide Emissions from Stationary Sources	EPA 40, CFR 60, App. A, Method 8
	Determination of Metal Emissions from Stationary Sources	EPA 40, CFR 60, App. A, Method 29

COPE OF ESTING: CHEMICAL SITE:

CATEGORY I

Materials/ Products Tested	**Type of Test/ Properties Measured/ Range of Measurement**	**Standard Test Methods/ Equipment/Techniques**
Environmental Monitoring Flue Gas	Determination of Concentration and Mass Flow of Particulate Matter in Flue Gas for Stationary Sources Emission	MS 1596:2003
	Determination of Dark Smoke Emissions from Chimney Using Ringelman Smoke Chart	BS 2742: 1969
	Determination of CO_2, CO, O_2, NO_2 & SO_2	In-house method-Flue Gas-01 based on manufacturer method

Note:

ISC	:	Methods of Air Sampling and Analysis, 3rd Edition, 1990; Intersociety Committee
AS	:	Australian Standard
APHA	:	Standard Methods for the Examination of Water and Wastewater; American Public Health Association, American Water Works Association and Water Environment Federation
ISO	:	International Organization for Standardization
APHA ISC 820	:	APHA Inter Society Comittee
ASTAM	:	American Society For Testing and Materials 1993, Volume 11.03
EPA	:	Enviromental Protection Agency, Part 60
CFR	:	Code of Federal Regulations
BS	:	British Standard, First Revision 1969
MS	:	Malaysian Standard, ICS 13.040.40, 2003

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Non-potable water Effluent	Heterotrophic Plate Count/ Total Plate Count (Pour Plate Method)	APHA 9215 B
	Heterotrophic Plate Count/ Total Plate Count (Spread Plate Method)	APHA 9215 C
	Total *Coliform* Fermentation Techniques	APHA 9221 B
	Total *Coliform* Membrane Filtration Techniques	In-house method- Micro-01 (Based on APHA 9222 J)
	E.coli Fermentation Techniques	In-house method- Micro-03 (Based on APHA 9221 E)
	E.coli Membrane Filtration Techniques	In-house method- Micro-02 (Based on APHA 9222 J)
	Fecal Coliform Fermentation Techniques	APHA 9221 E

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SCOPE OF TESTING: MICROBIOLOGY

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
~~Water~~	~~Heterotrophic Plate Count/ Total Plate Count (Pour Plate Method)~~	~~APHA 9215 B~~
	~~Heterotrophic Plate Count/ Total Plate Count (Spread Plate Method)~~	~~APHA 9215 C~~
	~~Total *Coliform* Fermentation Techniques~~	~~APHA 9221 B~~
	~~Total *Coliform* Membrane Filtration Techniques~~	~~In-house method- Micro-01 (Based on APHA 9222 B)~~
	~~*E.coli* Fermentation Techniques~~	~~In-house method- Micro-03 (Based on APHA 9221 E)~~
	~~*E.coli* Membrane Filtration Techniques~~	~~In-house method- Micro-02 (Based on APHA 9222 G)~~
	~~*Fecal Coliform* Fermentation Techniques~~	~~APHA 9221 E~~

SUSPENSION

Note:

APHA : Standard Methods for the Examination of Water and Wastewater; American Public Health Association, American Water Works Association and Water Environment Federation