

NO: SAMM 575

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LABORATORY LOCATION:  
(PERMANENT LABORATORY)

**CHEMSAIN KONSULTANT SDN BHD**  
**LOT PT 21702, JALAN KUBANG**  
**KURUS, KAWASAN**  
**PERINDUSTRIAN JAKAR 2**  
**24000 KEMAMAN**  
**TERENGGANU DARUL IMAN MALAYSIA**

FIELDS OF TESTING: CHEMICAL &amp; MECHANICAL

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
<b>Water</b> <ul style="list-style-type: none"> <li>• Ground Water</li> <li>• Surface Water</li> <li>• River Water</li> <li>• Marine Water</li> <li>• Formation Water</li> <li>• Estuarine Water</li> <li>• Potable &amp; Domestic Water</li> <li>• Drinking Water</li> </ul>	Temperature	APHA 2550 B, 2017
	pH Value	APHA 4500-H+ B, 2017
	Conductivity	APHA 2510 B, 2017
	Turbidity	APHA 2130 B, 2017
	Total Solids	APHA 2540 B, 2017
	Total Dissolved Solids	APHA 2540 C, 2017
	Total Suspended Solids	APHA 2540 D, 2017
	Oil and Grease	APHA 5520 B, 2017
	Oxygen (Dissolve)	APHA 4500-O G, 2017
	Oxygen (Dissolve)	APHA 4500-O C, 2017
	Biochemical Oxygen Demand	APHA 5210 B, 2017 & APHA 4500-O G, 2017
	Chemical Oxygen Demand	APHA 5220 C, 2017
	Formaldehyde	In-House Method 0527, Based on AOAC 931.08
	Sulphide	APHA 4500 S D, 2017

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## SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
<b>Water</b> <ul style="list-style-type: none"> <li>• Ground Water</li> <li>• Surface Water</li> <li>• River Water</li> <li>• Marine Water</li> <li>• Formation Water</li> <li>• Estuarine Water</li> <li>• Potable &amp; Domestic Water</li> <li>• Drinking Water</li> </ul>	Free, combined and Total Residual Chlorine	In-House Method 0501, Based on Palintest
	Fixed Solids and Volatile Solids	APHA 2540 E, 2017
	Oil and Grease (Emulsified Edible)	In-House Method 6039, Based on APHA 5520 B & F 2017
	Oil and Grease (Mineral)	APHA 5520 F 2017
	Total Cyanide	APHA 4500-CN C & F, 2017
	Phenol	APHA 5530 B & F, 2017
	Phosphorus	APHA 4500 P D, 2017
	Phosphate	APHA 4500 P D, 2017
	Chromium Trivalent	In House Method 0508, Based on APHA 3500 Cr B, 2017
	Salinity	APHA 2520 B, 2017
	Chloride	APHA 4500 Cl <sup>-</sup> B, 2017
	Hydrocarbon	APHA 5520 B & F, 2017
	Ammoniacal – Nitrogen	APHA 4500 NH <sub>3</sub> B & C, 2017 (Titration)
		APHA 4500 NH <sub>3</sub> B & F, 2017 (Phenate)
	Color (Hazen/Pt/Co/Cu units)	APHA 2120 C, 2017
	Color ADMI	APHA 2120 F, 2017
Total Alkalinity	APHA 2320 B, 2017	
Chromium Hexavalent	APHA 3500 Cr B, 2017	

## Note:

- APHA: American Public Health Association
- AOAC: Association of Official Analytical Chemists

## Signatories:

- |   |                                  |
|---|----------------------------------|
| <b>1. Nur Syaida Binti Yusof</b>        | <b>IKM No. M/5625/7865/17/21</b> |
| <b>2. Rabia'tun Hidayah Binti Jusoh</b> | <b>IKM No. F/0060/77/71/94</b>   |
| <b>3. *Sim Hang Thiew</b>               | <b>IKM No. M/0688/1530/83</b>    |

\* This signatory is a non-resident signatory

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## SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
<b>Environmental Monitoring</b> <ul style="list-style-type: none"> <li>• Industrial Effluent</li> <li>• Sewage Water</li> <li>• Wastewater</li> </ul>	Temperature	APHA 2550 B, 2005 APHA 2550 B, 2017
	pH Value	APHA 4500-H+ B, 2005 APHA 4500-H+ B, 2017
	Conductivity	APHA 2510 B, 2017
	Turbidity	APHA 2130 B, 2005 APHA 2130 B, 2017
	Total Solids	APHA 2540 B, 2017
	Total Dissolved Solids	APHA 2540 C, 2017
	Total Suspended Solids	APHA 2540 D, 2005 APHA 2540 D, 2017
	Oil and Grease	APHA 5520 B, 2005 APHA 5520 B, 2017
	Oxygen (Dissolve)	APHA 4500-O G, 2005 APHA 4500-O G, 2017
	Oxygen (Dissolve)	APHA 4500-O C, 2005 APHA 4500-O C, 2017
	Biochemical Oxygen Demand	APHA 5210 B, 2005 & APHA 4500-O G, 2005 APHA 5210 B, 2005 & APHA 4500-O G, 2017
	Chemical Oxygen Demand	APHA 5220 C, 2005 APHA 5220 C, 2005
	Formaldehyde	In-House Method 0527, Based on AOAC 931.08
	Sulphide	APHA 4500 S D, 2005 APHA 4500 S D, 2017
	Free, combined and Total Residual Chlorine	In-House Method 0501, Based on Palintest
	Fixed Solids and Volatile Solids	APHA 2540 E, 2017
	Oil and Grease (Emulsified Edible)	In-House Method 6039, Based on APHA 5520 B & F
	Oil and Grease (Mineral)	APHA 5520 F 2017
	Total Cyanide	APHA 4500-CN C & F, 2005 APHA 4500-CN C & F, 2017
Phenol	APHA 5530 B & F, 2005 APHA 5530 B & F, 2017	
Phosphorus	APHA 4500 P D, 2017	
Phosphate	APHA 4500 P D, 2017	

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## SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
<b>Environmental Monitoring</b> <ul style="list-style-type: none"> <li>Industrial Effluent</li> <li>Sewage Water</li> <li>Wastewater</li> </ul>	Chromium Trivalent	In House Method 0508, Based on APHA 3500 Cr B
	Salinity	APHA 2520 B, 2017
	Chloride	APHA 4500 Cl <sup>-</sup> B, 2017
	Hydrocarbon	APHA 5520 B & F, 2017
	Ammoniacal – Nitrogen	APHA 4500 NH <sub>3</sub> B & C, 2005 (Titration) APHA 4500 NH <sub>3</sub> B & C, 2017 (Titration)
	Ammoniacal – Nitrogen	APHA 4500 NH <sub>3</sub> B & F, 2005 (Phenate) APHA 4500 NH <sub>3</sub> B & F, 2017 (Phenate)
	Color (Hazen/Pt/Co/Cu units)	APHA 2120 C, 2017
	Color ADMI	APHA 2120 F, 2005 APHA 2120 F, 2017
	Total Alkalinity	APHA 2320 B, 2017
	Chromium Hexavalent	APHA 3500 Cr B, 2005 APHA 3500 Cr B, 2017
<b>Environmental Monitoring</b> <ul style="list-style-type: none"> <li>Scheduled Waste (Spent Lubricating Oil/ Spent Hydraulic Oil/ Liquid Waste)</li> </ul>	Flash Point	USEPA 1010-04

## Note:

- APHA: American Public Health Association
- AOAC: Association of Official Analytical Chemists
- USEPA: United States Environmental Protection Agency

## Signatories:

- |  |                           |
|--|---------------------------|
| 1. Nur Syaida Binti Yusof              | IKM No. M/5625/7865/17/21 |
| 2. Rabia'tun Hidayah Binti Jusoh       | IKM No. F/0060/77/71/94   |
| 3. Wan Norfatihah Binti Wan Omar Bakri | IKM No. M/5631/6952/14/21 |
| 4. *Sim Hang Thiew                     | IKM No. M/0688/1530/83    |

\* This signatory is a non-resident signatory

Signatory No. 3 only for Schedule Waste (Spent Lubricating Oil/ Spent Hydraulic Oil/ Liquid Waste)

Signatory No. 2 only for Industrial Effluent, Sewage Water and Wastewater

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## SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
<b>Petroleum &amp; Petroleum Products</b>  <ul style="list-style-type: none"> <li>Crude Oil</li> </ul>	Density, Specific Gravity and API Gravity	ASTM D1298 12b (Hydrometer Method)
	Kinematic Viscosity	ASTM D445-19
	Water	ASTM D 4928-12
	Flash Point	ASTM D 93-20 (Procedure A)
	Density and Relative Density	ASTM D5002-19
	Crude Composition C1-C36+	In-House Method 0522, Based on ASTM D5442-08
	Water and Sediment	ASTM D4007-16e1
<ul style="list-style-type: none"> <li>Lube Oil/Hydraulic Oil</li> </ul>	Kinematic Viscosity at 40 deg and 100 deg	ASTM D445-19
	Flash Point	ASTM D93-20
	Rust Test	ASTM D665-14e1
	Water Content	ASTM D6304-20
	Density, Relative density and API Gravity	ASTM D4052-18
	Water	ASTM D 4928-12
	Flash Point	ASTM D 93-20 (Procedure A)
<ul style="list-style-type: none"> <li>Biodiesel Blend</li> </ul>	Water	ASTM D 6304-16e1 (Procedure A)
	Flash point	ASTM D 93-20 (Procedure A)
	Density, Specific Gravity, API Gravity	ASTM D1298 12b (Hydrometer 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
<b>Petroleum &amp; Petroleum Products</b>  • Natural Gas	Composition Analysis C1 – C12+	GPA 2286-14
	Calorific Value, Density, Relative Density and Wobbe Index	ISO 6976:2005
	Water Content	ISO 10101-3:1993
	Mercury	ASTM D 6350-14

## Note:

- ASTM: American Society for Testing and Materials
- ISO: International Organization for Standardization
- GPA: Gas Producers Association

**Signatories:**

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|---|----------------------------------|
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| <b>2. Wan Norfatihah Binti Wan Omar Bakri</b> | <b>IKM No. M/5631/6952/14/21</b> |
| <b>3 *Sim Hang Thiew</b>                      | <b>IKM No. M/0688/1530/83</b>    |

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**SCOPE OF TESTING: CHEMICAL**

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
<b>Others</b> <ul style="list-style-type: none"> <li>Foam Concentrates</li> </ul>	Foam expansion and 25 % Drainage Time	In-house method 6044, Based on IMO MSC. 1 CIRC 1312, Clause 3.7 & 3.8
	Spreading Coefficient at 20 deg	EN 1568-3, Annex F with reference to ISO 304:1985
	Specific Gravity @ 20 ° C	IMO MSC 1 CIRC. 1312, Clause 3.11 (ASTM D 1298-12b)
	Viscosity @ 20 ° C	IMO MSC 1 CIRC. 1312, Clause 3.4.1 (ASTM D 445-19)
	pH value @ 20 ° C	APHA 4500-H <sup>+</sup> B, 2017
	Refractive Index @ 20 ° C	In House Method 5998, Based on ASTM D1218-12
<ul style="list-style-type: none"> <li>Non-Alcohol Resistant Foam Concentrates (Low Expansion)</li> </ul>	90% Control, Extinction and Burn-back Time for surface application to water immiscible liquids	In-house method 6043, Based on Def Stan 42-40/2, Annex C-2002

## Note:

- ASTM: American Society for Testing and Materials
- APHA: American Public Health Association
- IMO: International Maritime Organization
- ISO: International Organization for Standardization
- EN: European Standards

**Signatories:**

- |   |                                  |
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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
<b>Site Testing</b>		
<b>Water</b> <ul style="list-style-type: none"> <li>• Ground Water</li> <li>• Surface Water</li> <li>• River Water</li> <li>• Marine Water</li> <li>• Formation Water</li> <li>• Estuarine Water</li> <li>• Drinking Water</li> </ul>	pH	APHA 4500 H <sup>+</sup> B 2017
	Temperature	APHA 2550 B, 2017
	Free, Combined and Total Residual Chlorine	In House Method 0501, Based on Palintest comparator
	Oxygen (Dissolved)	APHA 4500 O H, 2017 APHA 4500 O G, 2017
<b>Environmental Monitoring</b> <ul style="list-style-type: none"> <li>• Wastewater</li> </ul>	pH	APHA 4500 H <sup>+</sup> B 2005 APHA 4500 H <sup>+</sup> B 2017
	Temperature	APHA 2550 B, 2005 APHA 2550 B, 2017
	Free, Combined and Total Residual Chlorine	In House Method 0501, Based on Palintest comparator
	Oxygen (Dissolved)	APHA 4500 O H, 2005 APHA 4500 O H, 2017  APHA 4500 O G, 2005 APHA 4500 O G, 2017

Note:

- APHA: American Public Health Association

**Signatories:**

- |                                  |                           |
|----------------------------------|---------------------------|
| 1. Nur Syaida Binti Yusof        | IKM No. M/5625/7865/17/21 |
| 2. Rabia'tun Hidayah Binti Jusoh | IKM No. F/0060/77/71/94   |
| 3. *Sim Hang Thiew               | IKM No. M/0688/1530/83    |

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SCOPE OF TESTING: MECHANICAL

SITE: CATEGORY I

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
<b>Field Sampling and Testing</b>		
<b>Environmental Monitoring</b> <ul style="list-style-type: none"> <li>Noise</li> </ul>	Measurement of Environmental Noise Levels	ISO 1996-1:2016 & ISO1996-2:2017
<ul style="list-style-type: none"> <li>Ambient Air</li> </ul>	Total Suspended Particulates	AS/NZS 3580 9.3: 2015
	PM10	AS/NZS 3580.9.6 2015
	PM2.5	AS/NZS 3580.9.14 2013
<ul style="list-style-type: none"> <li>Vibration</li> </ul>	Vibration level	In House Method 0591, Based on Manufacturing Instrumentation

**Signatories:**

- Zurida A. Razak**
- Nur Lina Zulkipeli**
- \*Lina Chan**

\* Non-resident signatory