

NO: SAMM 782

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LABORATORY LOCATION:
(PERMANENT LABORATORY)

BINTULU LAB
CHEMSAIN KONSULTANT SDN. BHD.
SUBLOT 153, LOT 8226
BINTULU SENTRAL,
JALAN KIDURONG
BINTULU, SARAWAK
MALAYSIA

FIELD 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).

SCOPE OF TESTING: CHEMICAL

Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Environmental monitoring Water & Wastewater	Turbidity	APHA 2130 B, 2005 APHA 2130 B, 2017
	Total Alkalinity (bicarbonate/ carbonate/ hydroxide)	APHA 2320 B, 2005 APHA 2320 B, 2017
	Conductivity	APHA 2510 B, 2005 APHA 2510 B, 2017
	Salinity	APHA 2520 B, 2005 APHA 2520 B, 2017 (by conductivity method)
	Temperature	APHA 2550 B, 2005 APHA 2550 B, 2017
	Total Solids	APHA 2540 B, 2005 APHA 2540 B, 2017
	Total Dissolve Solids	APHA 2540 C, 2005 APHA 2540 C, 2017
	Total Suspended Solids	APHA 2540 D, 2005 APHA 2540 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
Environmental monitoring: <ul style="list-style-type: none"> Water & Wastewater 	Total hardness	APHA 2340 C, 2005 APHA 2340 C, 2017
	pH	APHA 4500 H ⁺ B, 2005 APHA 4500 H ⁺ B, 2017
	Free Carbon dioxide	APHA 4500 CO ₂ C, 2005 APHA 4500 CO ₂ C, 2017
	Free Carbon dioxide (by calculation)	APHA 4500 CO ₂ D, 2005 APHA 4500 CO ₂ D, 2017
	Chloride	APHA 4500 Cl ⁻ B, 2005 APHA 4500 Cl ⁻ B, 2017
	Dissolved Oxygen	APHA 4500 OG, 2005 APHA 4500 OG, 2017
		APHA 4500 OC, 2005 APHA 4500 OC, 2017
	Ammoniacal Nitrogen	APHA 4500 NH ₃ B & C, 2005 APHA 4500 NH ₃ B & C, 2017
	Total Nitrogen, Kjeldahl (as N)	APHA 4500 N _{org} B, 2005 APHA 4500 N _{org} B, 2017
	Sulphate	APHA 4500 SO ₄ ²⁻ E, 2005 APHA 4500 SO ₄ ²⁻ E, 2017
	Biochemical Oxygen Demand (BOD) 5 days @ 20°C	APHA 5210 B & 4500-O C, 2005 APHA 5210 B & 4500-O C, 2017
		APHA 5210 B & 4500-O G, 2005 APHA 5210 B & 4500-O G, 2017
	Chemical Oxygen Demand	APHA 5220 C, 2005 APHA 5220 C, 2017
	Oil & Grease	APHA 5520 B, 2005 APHA 5520 B, 2017
Free, Combined and Total Residual Chlorine	In House Method 0501 based Palintest Comparator	

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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 • Marine Water/ Estuarine Water/ Formation Water/ Produced Water	Turbidity	APHA 2130 B, 2005 APHA 2130 B, 2017
	Total Alkalinity (bicarbonate/ carbonate/ hydroxide)	APHA 2320 B, 2005 APHA 2320 B, 2017
	Conductivity	APHA 2510 B, 2005 APHA 2510 B, 2017
	Salinity	APHA 2520 B, 2005 APHA 2520 B, 2017
	Temperature	APHA 2550 B, 2005 APHA 2550 B, 2017
	Total Solids	APHA 2540 B, 2005 APHA 2540 B, 2017
	Total Dissolve Solids	APHA 2540 C, 2005 APHA 2540 C, 2017
	Total Suspended Solids	APHA 2540 D, 2005 APHA 2540 D, 2017
	Total hardness	APHA 2340 C, 2005 APHA 2340 C, 2017
	pH	APHA 4500 H ⁺ B, 2005 APHA 4500 H ⁺ B, 2017
	Free Carbon dioxide	APHA 4500 CO ₂ C, 2005 APHA 4500 CO ₂ C, 2017
	Chloride	APHA 4500 Cl ⁻ B, 2005 APHA 4500 Cl ⁻ B, 2017
	Dissolved Oxygen	APHA 4500 OC, 2005 APHA 4500 OC, 2017
		APHA 4500 OG, 2005 APHA 4500 OG, 2017
	Ammoniacal Nitrogen	APHA 4500 NH ₃ B & C, 2005 APHA 4500 NH ₃ B & C, 2017
Total Nitrogen, Kjeldahl (as N)	APHA 4500 Norg B, 2005 APHA 4500 Norg B, 2017	
Sulphate	APHA 4500 SO ₄ ²⁻ E, 2005 APHA 4500 SO ₄ ²⁻ E, 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
Environmental monitoring <ul style="list-style-type: none"> Marine Water/ Estuarine Water/ Formation Water/ Produced Water 	Biochemical Oxygen Demand (BOD) 5 days @ 20 °C	APHA 5210 B & 4500-O C, 2005 APHA 5210 B & 4500-O C, 2017
		APHA 5210 B & 4500-O G, 2005 APHA 5210 B & 4500-O G, 2017
	Chemical Oxygen Demand	APHA 5220 C, 2005 APHA 5220 C, 2017
	Oil & Grease	APHA 5520 B, 2005 APHA 5520 B, 2017
	Free, Combined and Total Residual Chlorine	In House Method 0501 based Palintest Comparator
	Unionised Ammonia by Calculation	In House Method 0590 adopted from Unionised Ammonia Calculator V 1.2 by Florida Dept. of Environment Protection
Environmental monitoring <ul style="list-style-type: none"> Palm oil mill effluent 	Biochemical Oxygen Demand	DOE 2019, Reference Method, Biochemical Oxygen Demand
	Chemical Oxygen Demand	DOE 2019, Reference Method, Chemical Oxygen Demand
	Oil & Grease	DOE 2019, Reference Method, Oil and Grease
	Suspended solids	DOE 2019, Reference Method, Suspended Solid
	Ammoniacal Nitrogen	DOE 2019, Reference Method, Ammoniacal Nitrogen
	Total Nitrogen (Macro)	DOE 2019, Reference Method, Total Nitrogen (Macro)

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Materials/ Products Tested	Type of Test/ Properties Measured/ Range of Measurement	Standard Test Methods/ Equipment/Techniques
Biodiesel, Biodiesel Blend & Petroleum Products	Flash Point	ASTM D 93 -20 (by Pensky-Martens Closed Cup Tester) Except for Biodiesel

Signatories:

- | | |
|------------------------------|--------------------------------|
| 1. Jesse Bungan | IKM No.: M/3608/6509/13 |
| 2. Margaret Anak Bain | IKM No.: M/2949/5745/10 |
| 3. *Sim Hang Thiew | IKM No.: M/0688/1530/83 |

*This signatory is a non-resident signatory

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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 <ul style="list-style-type: none"> • Water & Wastewater • Marine Water/ Estuarine Water/ Formation Water/ Produced Water 	pH	APHA 4500 H+B, 2005 APHA 4500 H+B, 2017
	Dissolved Oxygen	APHA 4500 OG, 2005 APHA 4500 OG, 2017
	Conductivity	APHA 2510 B, 2005 APHA 2510 B, 2017
	Temperature	APHA 2550 B, 2005 APHA 2550 B, 2017
	Free, Combined and Total Residual Chlorine	In House Method 0501 based Palintest Comparator

Signatories:

1. **Jesse Bungan**
2. ***Sim Hang Thiew**

IKM No.: M/3608/6509/13
IKM No.: M/0688/1530/83

*This signatory is a non-resident signatory.