Issue date: 11 March 2024
Valid Until: 30 September 2025

NO: SAMM 053
(Issue 1, 11 March 2024 replacement
of SAMM 053 dated 11 March 2024)

LABORATORY LOCATION/ CENTRAL OFFICE:	Petronas Research Sdn Bhd Project Delivery & Technology (PD&T) Division Lot 3288 & 3289, Off Jalan Ayer Itam, Kawasan Institusi Bangi, 43000 Kajang, Selangor , 43000, SELANGOR MALAYSIA
ACCREDITED SINCE :	30 SEPTEMBER 1994
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:	Petronas Research Sdn Bhd Project Delivery & Technology (PD&T) Division Lot 3288 & 3289, Off Jalan Ayer Itam, Kawasan Institusi Bangi, 43000 Kajang, Selangor , 43000, Selangor
FIELD(S) OF TESTING :	CHEMICAL,

SCOPE OF TESTING : CHEMICAL

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Material / Product Tested	Type Of Test / Properties Measured / Range Of Measurement	Standard Test Methods / Equipment / Techniques
Petroleum & Petroleum Products Crude Petroleum	Kinematic Viscosity of Transparent and Opaque Liquids (the Calculation of Dynamic Viscosity) Acid Number of Petroleum Products by Potentiometric Titration Density, Relative Density, or API Gravity of Crude Petroleum and Liquid Petroleum Products by Hydrometer Method Water in Crude Oil by Distillation Water and Sediment in Crude Oil by the Centrifuge Method (Laboratory Procedure) Density and Relative Density of Liquids by Digital Density Meter	ASTM D 445 ASTM D 664 (Test Method A) ASTM D 1298 ASTM D 4006 ASTM D 4007 ASTM D 4052
	Water in Crude Oils by Coulometric Karl Fischer Titration	ASTM D 4928
	Density, Relative Density, and API Gravity of Crude Oils by Digital Density Analyzer	ASTM D 5002
	Determination of Asphaltenes (Heptane Insolubles) in Crude Petroleum and Petroleum Products	ASTM D 6560
	Boiling Point Distribution of Samples with Residues such as Crude Oils and Atmospheric and Vacuum Residues by High Temperature Gas Chromatography	ASTM D 7169
Water - Formation Water - Produced Water - Potable Water	Alkalinity Chloride pH Value	APHA 2320 B (Titration Method) APHA 4500 CI- B (Argentometric Method) APHA 4500-H+ B (Electrometric Method)

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Material / Product Tested	**Type Of Test / Properties Measured / Range Of Measurement**	**Standard Test Methods / Equipment / Techniques**
Water - Formation Water - Produced Water	Metal Content: • Iron, Fe • Sodium, Na • Calcium, Ca • Magnesium, Mg • Potassium, K • Strontium, Sr • Barium, Ba Total Dissolved Solid Dried at 180 °C	APHA 3120 B - ICP - OES APHA 2540 C
Environmental Monitoring Waste Water	Solids – Total Suspended Solids Dried at 103 – 105°C	APHA 2540 D
	pH Value	APHA 4500-H+ B (Electrometric Method)
	Chemical Oxygen Demand	In-house method based on APHA 5220 D (Closed Reflux, Colorimetric Method)
	Chromium Hexavalent	In-house method based on APHA 3500-Cr B (Colorimetric Method)
	Phenol	In-house method based on APHA 5530 C (Chloroform Extraction Method)