CERTIFICATE OF ACCREDITATION

This is to attest

ACES KUWAIT FOR GEOTECHNICAL INVESTIGATION AND ENGINEERING MATERIALS TESTING

STR. 15

MUBARAK AL KABEER, WEST OF ABU FATIRA AL HERAFIA, BLOCK- 001, BUILDING #298, 47061, KUWAIT

Calibration Laboratory CL-272

has met the requirements of AC204, *IAS Accreditation Criteria for Calibration Laboratories*, and has demonstrated compliance with ISO/IEC Standard 17025:2017, *General requirements for the competence of testing and calibration laboratories.* This organization is accredited to provide the services specified in the scope of accreditation.

Effective Date January 6, 2025

International Accreditation Service

Issued under the authority of IAS management

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SCOPE OF ACCREDITATION

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ACES KUWAIT FOR GEOTECHNICAL INVESTIGATION AND ENGINEERING MATERIALS TESTING

www. aces-int.com

Contact Name Ghaleb Al Zubi **Contact Phone** +965 22205055

Accredited to ISO/IEC 17025:2017 *Effective Date January 6, 2025*

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Dimensional			
Caliper	0 mm to 300 mm	0.006 mm	Grade 0 Gauge Block, Ring Gauge VDI/VDE/DGQ 2618 Part 9.1
Micrometer	0 mm to 25 mm	0.0006 mm	ISO: 3611 Grade 0 Gauge Block
Feeler Gauge	0.01 mm to 1 mm	0.003 mm	Calibration of Feeler Gauge International accreditation New Zealand AS TG 1
Linear Measuring Scales	0 mm to 5000 mm	0.06 mm	NIST SOP 10 Video Measuring Machine, Standard Ruler
Sieves Fine Sieves Coarse Sieves	 0.02 mm to 2 mm 2 mm to 25 mm 25 mm to 125 mm	 0.001 mm 0.047 mm 0.073 mm	ASTM E11/BS 410-1/ISO 3310-1/ASTM E323/BS 410-2/ISO 3310-2 Video Measuring Machine, Caliper
Dial/Digital Linear Displacement/Depth Gauges	0 mm to 100 mm	0.002 mm	BS 907 Gauge Blocks/Micrometer Head
Video Measuring Machine	Length: 0 mm to 1 mm 1 mm to 200 mm	0.001 mm 0.003 mm	MPC 300 Manufacturer Manual / JIS Glass Scale/Stage Micrometer
Applicators, Fineness of grind gauge, Hegman Gauge	0 mm to 0.05 mm 0.05 mm to 5 mm	0.003 mm 0.003 mm	Elco meter manufacturer Procedure /PTB guidelines for Hardness and tactile probing Method Group 5.1.1

** If information in this CMC is presented in non-SI units, the conversion factors stated in NIST Special Publication 811 "Guide for the Use of the International System of Units (SI)" apply.*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
			Dial Indicator and Microindicators
Coating Thickness Gauge	0 mm to 0.5 mm 1 mm	0.0015 mm 0.0015 mm	ISO 19840 Clause 5.3 and 6.2 Reference foils
Jigs and Fixtures (Length, Diameter and Radius)	0 mm to 200 mm 200 mm to 300 mm 300 mm to 5000 mm	0.002 mm 0.05 mm 1 mm	International accreditation New Zealand AS TG 1 Caliper, Micrometer, gauge blocks, VMM, Steel Tapes
Mechanical			
Compression Machine	1 kN to 10 kN 10 kN to 100 kN 100 kN to 3000 kN	0.02 kN 0.19 kN 1.9 kN	ISO 7500-1 clause 6.4/ASTM E4/ASTM E2309 Load Cell
Load Ring	0 kN to 100 kN	0.03 kN	ASTM E74-13a Load Cell
Weights	0 g to 200 g 220 g to 5000 g 5 kg to 20 kg	0.00016 g 0.015 g 0.1 g	OIML R 111 E2 and F1 Standard Weights, Precision Balance
Weighing Balance	0 g to 220 g 220 g to 6000 g 6 kg to 31 kg	0.0003 g 0.036 g 0.31 g	OIML R 76-1/Euromet CG-18 E2 Class Weights & F1 Class Weights
Industrial Weighing System (Batching Plant Weighers, Hoppers, Silo)	0 kg to 150 kg 150 kg to 1000 kg 1000 kg to 2000 kg 2000 kg to 3000 kg	0.006 kg 0.68 kg 0.89 kg 1.0 kg	NPL WGC0496 M1 Standard Weights
Volumetric Apparatus	0 mL to 50 mL 50 mL to 500 mL 500 mL to 1000 mL	0.0017 mL 0.051 mL 0.14 mL	NISTIR 7383/ASTM C29/ ASTM D1557/ASTM D698/ASTM C1252 Precision Balances, Secondary PRT, Stopwatch
Pressure Measuring Devices	-0.8 bar to 0 bar 0 bar to 20 bar 20 bar to 700 bar	0.013 bar 0.074 bar 0.7 bar	Euromet CG-17 Pressure Calibrator/Pressure Module/ reference Pressure gauge
Speedy Moisture Tester	0 % to 20 %	0.06 %	ASTM D2216 Test method B Analytical Balance/Precision Balance

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Viscosity – Measure (Viscometers, Viscosity Cups)	60 cSt (S60) 200 cSt (S200) 5000 cSt (RT5000) 10000 cSt (RT10000)	0.5 % 0.5 % 0.5 % 0.5 %	ASTM E2975/ASTM D5125/ASTM D1200/ASTM D4212/ISO 2431/ASTM D446/ASTM D88/ASTM D7175 Standard Oils
Air Content Meter	0 % to 20 %	0.12 %	ASTM C231/BS EN 12350-7 Electronic Balance
Sand Cone (Mass, Volume) and Sand Density	1 kg to 2 kg 1 L to 2 L 1.4 g/cm^3 to 1.6 g/cm^3	10 g 6 mL 0.001 g/cm^3	ASTM D1556 Balance/Mold
Thermal			
Temperature Measuring Device – Contact Type (Resistance Thermometer, Thermocouple, Dial Thermometer)	-25 ºC to 0 ºC 0 ºC to 600 ºC	0.01 ºC 0.02 ºC	ASTM E644-11 ASTM E220-13 Standard Platinum Resistance Thermometer, Secondary PRT
Temperature Measuring Device – Contact Type Liquid in Glass Thermometer	-25 ºC to 100 ºC	0.12 ºC	ASTM E77-14 Standard Platinum Resistance Thermometer, Secondary PRT
Temperature Measuring Device – Non-Contact Type (IR Thermometer, Pyrometer)	50 ºC to 400 ºC	0.54 ºC	Calibration of Non-Contact Temperature Measuring Devices MS Technical Guide 22/ASTM E2847 IR Calibrator
Temperature and Humidity Controlled Enclosures	22.7 ºC 35.0 %RH to 75.0 %RH	0.11 ºC 0.93 %RH	BS 1377-1/ASTM E145/ Euromet CG-20 Temperature Humidity Meter
Temperature Controlled Enclosures (Oven, Freezer, Incubator, Furnace, Refrigerator, Autoclave temperature, Cold Room)	-25 ºC to 200 ºC 200 ºC to 1200 ºC	0.66 ºC 1.6 ºC	BS 1377-1/ASTM E145/ Euromet CG-20 Temperature Scanner with K type Thermocouples, Thermocouple S Type
Liquid Bath	25 ºC to 145 ºC	0.03 ºC	BS 1337-1/ASTM E715 Standard Platinum Resistance Thermometer
Temperature blocks, Temperature Calibrator, Dry Blocks, Hot plate	-30 ºC to 660 ºC	0.03 ºC	Euromet CG-13 Standard Platinum Resistance Thermometer, Secondary PRT

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY[1,2] (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Thermohygrometers	20 ºC to 28 ºC 30 % to 80 %	0.31 ºC 3.1 %RH	NIST 250-83 Reference Thermohygrometer
Time and Frequency			
Timing Devices	5 s to 3600 sec	0.13 s	NIST 960-12 Reference Stopwatch
Rotating and Counting Devices	10 rpm to 100 rpm 100 rpm to 3600 rpm 3600 rpm to 11000 rpm	0.14 rpm 1.6 rpm 11 rpm	SANAS TR 45-1 Digital Tachometer with Counter

[1]The uncertainty covered by the Calibration and Measurement Capability (CMC) is expressed as the expanded uncertainty having a coverage probability of approximately 95 %. It is the smallest measurement uncertainty that a laboratory can achieve within its scope of accreditation when performing calibrations of a best existing device. The measurement uncertainty reported on a calibration certificate may be greater than that provided in the CMC due to the behavior of the calibration item and other factors that may contribute to the uncertainty of a specific calibration.

[2]When uncertainty is stated in relative terms (such as percent, a multiplier expressed as a decimal fraction or in scientific notation), it is in relation to instrument reading or instrument output, as appropriate, unless otherwise indicated.