



CERTIFICATE OF ACCREDITATION

This is to attest that

CARIBBEAN INDUSTRIAL RESEARCH INSTITUTE (CARIRI)

UWI CAMPUS

ST. AUGUSTINE, REPUBLIC OF TRINIDAD AND TOBAGO

Calibration Laboratory CL-134

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 November 17, 2022

Expiration Date September 1, 2024



A handwritten signature in black ink, reading "Raj Nathan".

President

IAS is an ILAC MRA Signatory

Visit www.iasonline.org for current accreditation information.

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

CARIBBEAN INDUSTRIAL RESEARCH INSTITUTE (CARIRI)

www.cariri.com

Contact Name Mr. Hans Schulz

Contact Phone +868-299-0210

Accredited to ISO/IEC 17025:2017

Effective Date November 17, 2022

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)*

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Dimensional			
Calipers Vernier Digital	0 mm to 500 mm 0 mm to 300 mm	15 µm 8 µm	Procedure SOP: CAMS.DMC1 based on BS 887:2008 Gauge Blocks, Grade "0"
Dial Gauges (Mechanical and Electronic)	0 mm to 25 mm	5 µm	Dial Calibration tester Procedure SOP.CAMS. DMD1 based on BS 907 Gauge Blocks, Grade "0" or Calibration Testers
Micrometers Mechanical Digital	0 mm to 200 mm 0 mm to 200 mm	7 µm 6 µm	Procedure CAR.CAMS.SOP.005 Based on BS 870:2008 Gauge Blocks, Grade "0"
Steel Rulers	0 m to 1 m	1 mm	Procedure CAR.CAMS.SOP.004 Reference Rule Based on BS 4372:1968
Feeler Gauges	0.01 mm to 1 mm	5 µm	Procedure CAR.CAMS.SOP.015 based on BS 957:2008
Mechanical			
Scales and Balances	Up to 40 g Up to 520 g Up to 6 kg Up to 10 kg Up to 30 kg	0.1 mg 0.3 mg 31 mg 0.46 g 3 g	Procedure SOP.CAMS.01 based on EURAMET cg-18 E2 Class Reference F1 Class Reference M1 class weights Combination of F1 & M1 Class

* 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.

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Mechanical Micropipette	0 µL to 10 µL 10 µL to 100 µL 20 µL to 200 µL 100 µL to 1000 µL 1000 µL to 5000 µL	0.07 µL 0.18 µL 2.0 µL 1.2 µL 2.0 µL	Procedure CAR.CAMS.SOP.014 based on BS EN ISO 4787:2011, ISO 8655-6:2002 and ISO 8655-2:2002 0.01mg (10µg) resolution Analytical Balance
Thermal			
Thermocouples K Type	-20 °C to 250 °C 250 °C to 1000 °C	0.09 °C 1.2 °C	Procedure SOP.CAMS. T1 based on BS 1041-2.1:1985 and ASTM E1-14 Isotech SPRT and Digital Temperature Indicator
N Type	420 °C to 1000 °C	2.5 °C	
Liquid in Glass Thermometers and Digital Thermometers	-20 °C to 220 °C	0.06 °C	Procedure SOP. CAMS.T1 based on BS 1041-2.1:1985 and ASTM E1-14 Isotech SPRT and Digital Temperature Indicator
Liquid in Glass Thermometers (Dual Scale with 0.05 °C resolution)	-0.3 °C to +0.3 °C 38.6 °C to 41.4 °C	0.04 °C 0.04 °C	Procedure SOP.CAMS. T1 based on on BS 1041-2.1:1985 and ASTM E1-14 Isotech SPRT and Digital Temperature Indicator milliK
Bi-metallic thermometers	-30 °C to 220 °C	1 °C	Procedure SOP.CAMS. T1 based on on BS 1041-2.1:1985 and ASTM E1-14
Ambient temperature sensors for freezers, chillers etc.	-30 °C to 5 °C	1 °C	Isotech SPRT; Isotech milliK; Digital Temperature Indicator; K Type Thermocouple.
Ambient Temperature Sensor	25 °C	0.18 °C	Procedure SOP.CAMS. T1 based on BS 1041-2.1:1985 and ASTM E1-14 Thermohygrometer, Humidity chamber
Ovens	40 °C to 250 °C	1.1 °C	Procedure SOP: CAMS.TPC1 K Type Thermocouples
Furnaces	500 °C to 1000 °C	2.1 °C	Procedure SOP: CAMS.TPC1 K type thermocouples
Infrared Thermometers	-20 °C to 220 °C	0.6 °C	Procedure SOP.CAMS.009 Isotech SPRT and Digital Temperature Indicator
Liquid Baths	-10 °C to 100 °C	0.23 °C	Procedure SOP: CAMS.TPC1 K Type Thermocouples

SCOPE OF ACCREDITATION

International Accreditation Service, Inc.

3060 Saturn Street, Suite 100, Brea, California 92821, U.S.A. | www.iasonline.org

MEASURED QUANTITY or DEVICE TYPE CALIBRATED	RANGE	UNCERTAINTY ^{1,2} (±)	CALIBRATION METHOD OR PROCEDURE, STANDARD EQUIPMENT (OPTIONAL)
Incubators	15 °C to 65 °C	0.25 °C	Procedure SOP: CAMS.TPC1 Using K Type Thermocouples
Autoclaves	100 °C to 140 °C	0.25 °C	Procedure SOP: CAMS.AC1 Using K Type Thermocouples
Refrigerators	-20 °C to 20 °C	1 °C	Procedure SOP: CAMS.TPC1 Using K Type Thermocouples
HumidityGenerate ³	20 %RH to 70 %RH (16 °C to 24 °C)	0.94 %RH	Procedure SOP: CAMS.RH1 Hygrometer, Humidity Chamber
Time and Frequency			
Stop Watches	0 min to 5 min 0 min to 60 min	0.35 s 0.6 s	Procedure SOP.CAMS.SW1 NIST Internet Time Service
Tachometer	10 rpm to 1000 rpm 1000 rpm to 99,999 rpm	1 rpm 3.5 rpm	Procedure ASTM F2046 – 00 FLUKE Multi-function calibrator 743B
Centrifuge speed	60 rpm to 20,000 rpm	5 rpm	Procedure AR.CAMS.SOP.013 Digital Tachometer

¹The 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.

²When 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.

³Capability is suitable for the calibration of measuring devices in the stated ranges.