

CERTIFICATE OF ACCREDITATION

TANZANIA BUREAU OF STANDARDS (METROLOGY LABORATORY)

Established by the Standards Act No. 2 of 2009

Facility Accreditation Number: CAL-14 007

is a SADCAS accredited Calibration Laboratory
provided that all SADCAS conditions are complied with

This certificate is valid as per the scope stated in the accompanying schedule of accreditation,
Annexure "A", bearing the above accreditation number for

TEMPERATURE METROLOGY

The facility is accredited in accordance with the recognized International Standard

ISO/IEC 17025:2017

*The accreditation demonstrates technical competency for a defined scope and the operation
of a laboratory quality management system*

*SADCAS is a subsidiarity organization of SADC. A memorandum of understanding between SADC and
SADCAS serves as the basis for the recognition of SADCAS by SADC Member States
as a multi-economy accreditation body*

Mrs Maureen P Mutasa
SADCAS Chief Executive Officer

Date of Renewal of Accreditation: 16 February 2021
Effective Date (Issue No: 1): 16 February 2021
Certificate Expires: 15 February 2026

ANNEXURE A

SCHEDULE OF ACCREDITATION

TEMPERATURE METROLOGY

Laboratory Accreditation Number: **CAL-14 007 (ISO/IEC 17025:2017)**

| <p>Permanent Address of Laboratory</p> <p>Tanzania Bureau of Standards Metrology Laboratory Morogoro / Sam Nujoma Road, Ubungo Dar es Salaam Tanzania</p> <p>Postal Address</p> <p>P O Box 9524 Dar es Salaam Tanzania</p> <p>Tel : +255 22 2450206 Cell : +255 784 806 143 Fax : +255 22 245 0959 Email : joseph.mahilla@tbs.go.tz</p> | | <p>Technical Signatories :</p> <p>Mr R B Sinkwai (All Items) Mr J Z Manyambani (Items 1, 2, 5 & 8) Mr J M Kadenge (Items 2, 3, 4 & 7) Mr W J Wishega (Items 1,2 ,6,7 & 8) Mr Z R Juma (Items 2, 4, 5, & 7)</p> <p>Nominated Representative : Mr J J Mahilla</p> <p>Issue No : 03 Date of Issue : 10 October 2023 Expiry Date : 15 February 2026</p> | | | |
|---|--|--|--|--|-------------|
| ITEM | MEASURED QUANTITY OR TYPE OF GAUGE OR INSTRUMENT | METHOD | RANGE OF MEASURED QUANTITY | CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±) | |
| | | | | At TBS | Onsite |
| 1 | Thermocouples | Internal: <i>MET-TEM-21</i> Reference: <i>EAL-G31, 1997</i> <i>SADCAS TR-26</i> | -30 °C to 50 °C 50 °C to 200 °C 200 °C to 400 °C | 0.5 °C 0.65 °C 0.70 °C | - - - |
| 2 | Ice Point | Internal: <i>MET-TEM-01</i> Reference: <i>Traceable Temperatures by J.V. Nicholas and D.R. White</i> <i>SADCAS TR-26</i> | 0 °C | 0.05 °C | - |
| 3 | Platinum Resistance Thermometers | Internal: <i>MET-TEM-24</i> Reference: <i>Traceable Temperatures by J.V. Nicholas and D.R. White</i> <i>SADCAS TR-26</i> | -30 °C to 50 °C 50 °C to 200 °C 200 °C to 350 °C | 0.05 °C 0.2 °C 0.25 °C | - - - |

Original date of accreditation: 04 November 2010

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The CMC, expressed as an expanded uncertainty of measurement, is stated as the standard uncertainty of measurement multiplied by a coverage factor $k = 2$, corresponding to a confidence level of approximately 95%.

ANNEXURE A

Laboratory Accreditation No: CAL-14 007 (ISO/IEC 17025:2017)

Issue No: 03

Date of Issue: 10 October 2023

Date of Expiry: 15 February 2026

| ITEM | MEASURED QUANTITY OR TYPE OF GAUGE OR INSTRUMENT | METHOD | RANGE OF MEASURED QUANTITY | CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (\pm) | |
|------|---|--|----------------------------|--|----------|
| | | | | | |
| 4 | Liquid-in-Glass Thermometers | Internal: <i>MET-TEM-23 & MET-TEM-05, MET-TEM-57</i> Reference: <i>Calibration of Thermometers, Y C.R. Barber (NPL – U.K)</i> SADCAS TR-26 | -30 °C to 50 °C | 0.1 °C | 0.2 °C |
| | | | 50 °C to 200 °C | 0.25 °C | 0.35 °C |
| 5 | Digital Thermometer – RTD & Thermistor based | Internal: <i>MET-TEM-22, MET-TEM-57 & MET-TEM-05</i> | -30 °C to 50 °C | 0.1 °C | 0.15 °C |
| | | | 50 °C to 200 °C | 0.25 °C | 0.3 °C |
| | | | 200 °C to 350 °C | 0.3 °C | 0.35 °C |
| | Digital Thermometer – Thermocouple based | Reference: <i>Traceable Temperatures by J.V. Nicholas and D.R. White</i> | -30 °C to 50 °C | 0.3 °C | 0.35 °C |
| | | | 50 °C to 200 °C | 0.4 °C | 0.5 °C |
| | | | 200 °C to 400 °C | 0.6 °C | 0.7 °C |
| 6 | 6.1 Autoclave Temperature 6.2 Autoclave Pressure 6.3 Autoclave Time | Internal: <i>MET-TEM-52 & MET-TEM-05</i> Reference: <i>Monitoring of Laboratory Steam Sterilizers NATA, Technical Note, January, 1992.</i> | 20 °C to 140 °C | - | 1.6 °C |
| | | | 0 bar to 4 bar | - | 0.03 bar |
| | | | 0 to 30 min | - | 14 s |
| 7 | Temperature Installations (Ovens, Incubators, Fridges/Freezers, Liquid Baths, Cold Rooms) | Internal: <i>MET-TEM-51, MET-TEM-53; MET-TEM-54; MET-TEM-55; MET-TEM-56 & MET-TEM-05</i> Reference: <i>Calibration Worx & various sources</i> | -30 °C to 200 °C | - | 0.5 °C |
| 8 | Data Loggers | Internal: <i>MET-TEM-25</i> Reference: <i>SADCAS TR-26</i> | -40 °C to 121 °C | 0.5 °C | 0.6 °C |

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Pinkie J Malebe
SADCAS Technical Manager