



**AFRIMETS**  
Intra-Africa Metrology System  
Système Intra-Africain de Métrologie



# **AFRIMETS TC-Mass and Related Quantities Report**

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# Meetings

- The last TC-M meeting was held on 7 July 2022 online with representation from 13 countries.
- Representation of Sub-RMO's (SADCMET, EAMET, NEWMET, MAGMET, ECOMET)
- Presentations by WG, TC M and Sub-RMOs chairs.

# Feedback from CCM and WG Meetings

- As of February 2021, Traceability for the SI unit of mass is to the Planck constant ( $h$ ) via a **consensus value, with standard uncertainty of 20  $\mu\text{g}$**
- NIS, Egypt applied to be a member of CCM WGM
  - NIS to make a presentation at the next WG Meeting in 2023

## Update on AFRIMETS.TC-M Comparisons

Identity	Quantity/Range	Field	Status	Pilot
AFRIMETS.M.D-S4	(0.65-0.7 & 1.2 -1.25) kg/m <sup>3</sup>	Density (Hydrometers)	Completed	NIS
AFRIMETS.M.M-K7	0.5 g - 5 kg	Mass	Approval	NIS
AFRIMETS.M.F-S1	(10 & 100) kN	Force	Completed	KEBS
AFRIMETS.M.F-S2	500 kN	Force	Completed (April 2021)	KEBS
AFRIMETS.M.FF-S1	(50 -5 000) mL/min	Fluid Flow	Results Analysis	NMISA/INRIM
AFRIMETS.M.T-S1	500 Nm & 1 000 Nm	Torque	Measurements in progress	NIS
AFRIMETS.M.P-S1	(10 - 110) kPa	Pressure	Draft A in progress	NMISA

# NMI's with Recently Published CMC in KCDB

## **Egypt (NIS):**

- Density (4) - Density of liquid and Density of solids - Feb/May 2022
- Fluid Flow (Volume of liquid) (3) - September 2021
- Hardness (6) - November 2021
- Torque (2) - November 2021

## **Morocco (LPEE)**

- Fluid Flow (volume of liquids) (1) - February 2022

## **Kenya (KEBS):**

- Force (7) - July 2021/February 2022



## **Number of NMI's with Published CMC in KCDB**

1. South Africa (NMISA): Mass, Fluid Flow (Volume of liquid), Force, Pressure
2. Egypt (NIS): Density, Fluid Flow (Volume of liquid), Mass, Pressure, Force, Torque, Hardness, Viscosity
3. Namibia (NSI): Mass
4. Kenya (KEBS): Force
5. Zimbabwe (SIRDC-NMI): Mass
6. Morocco: Fluid Flow (Volume of liquid)

## CMCs Intra-Review

- LPEE/LNM – Mass standards
- NIS – Mass Standards and Density of solids

## **KCDB 2.0 - Online Technical Exchanges**

- Online technical exchanges by BIPM
- Aimed to support those who create/submit CMCs,
- Aimed to support those who coordinate reviews and reviewers
- Short videos are available on the BIPM/KCDB website



## Planned Comparisons

Year	Identifier	Description	Participants	Pilot	Status
2022/23	AFRIMETS.M.P-SX	0 MPa-70 Mpa, artefact EMI	NIS,NMISA,TBS,UNBS,KEBS,BOBS,MBS, SON	NIS/EMI	Planned
2022/23	AFRIMETS.M.M-SX	Mass(F1 100mg - 5kg), EMI	NMIE,MBS,GSA,UNBS,SON,TBS,BOBS,KEBS,SIRDC-NMI, RBS	EMI	Planned
2022/23	AFRIMETS.M.T-SX	Torque Wrenches (500Nm),LPEE/LNM	LPEE/LNM, NIS,KEBS,EMI,TBS, UNBS, GSA, RBS	NIS	Planned
2023/24	AFRIMETS.M.F-SX	Force (100 kN), testing machines	LPEE/LNM,KEBS,NIS	NIS	Planned

## Planned Comparisons

Year	Identifier	Description	Participants	Pilot	Status
2022/23	AFRIMETS.M.T-SX	Torque Transducers	NIS, NMISA, LPEE, KEBS	NIS	Planned
2022/23	AFRIMETS.M.FF-SX	Volume 2L	UNBS, TBC	KEBS	Planned
2023/24	AFRIMETS.M.FF-SX	Volume gas flow rate	TBC	NMISA	Planned

# Structure of AFRIMETS.TC-M

- TC M – Chair: Mr Thomas Mautjana, NMISA, South Africa  
Vice Chair: Mr Dominic Ondoro, KEBS, Kenya  
Vice Chair: Dr Ahmed Desosky, NIS, Egypt

Working Group	Chair	Vice Chair
Density and Viscosity	Dr Mohamed Hamdy (NIS-Egypt)	Ms Beatrice Lugadiru (KEBS-Kenya)
Force and Torque	Dr Khaled Abdelaziz (NIS-Egypt)	Mr Bangi Josephat (KEBS-Kenya)
Fluid Flow	Mr Mpilo Dlamini (NMISA-South Africa)	Dr Ali Zahran (NIS-Egypt)
Mass	Mr Bongani Ndlovu (NMISA-South Africa)	Mr Lhossain Mechkour (LPEE-LNM –Morocco)
Pressure and Vacuum	Dr Shaker Gelany (NIS-Egypt)	Mr Prince Tawiah (GSA-Ghana)



Thank You