



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 14 July 2021 online with 47 participants from 15 countries.
- Representation of Sub-RMO's (SADCMET, EAMET, NEWMET, MAGMET, ECOMET etc.)
- Presentation by WG and TC M chairs. (Fluid Flow, Force and Torque, Mass, Density & Viscosity, Pressure & Vacuum)

Participated in 2021 CCM & Working Group Meetings

Identifier	Description	Date
CCM-WGPV	Working group on Pressure & Vacuum	14-16 April 2021
CCM-WGDV	Working Group Density & Viscosity	19 April 2021
CCM-WGFT	Working Group on Force & Torque	20 April 2021
CCM-WGS	Working Group on Strategy & MRA Coordination	21 April 2021
CC-WGFF	Working group on Fluid Flow	22 April 2021
CCM-WGM	Working group on Mass	23 April 2021
CCM-WGG	Working Group on Gravimetry	29 April 2021
CCM-WGH	Working group on Hardness	30 April 2021
CCM	Mass and Related Quantities	20-21 May 2021

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 μg**
- NIS, Egypt applied to be a member of CCM WGM
 - NIS to make a presentation at the next WG Meeting in 2023

NMI's with published CMC in KCDB

- South Africa (NMISA): Mass, Fluid Flow (Volume of liquid), Force, Pressure
- Egypt (NIS): Mass, Pressure, Force & Torque, Viscosity
- Namibia (NSI): Mass
- **Zimbabwe (SIRDC-NMI): Mass**

CMC's Under-review

Intra and Inter RMO submissions

- KEBS – Force CMC's under JCRB review
- LPEE/LNM – Fluid Flow (Volume of liquid), JCRB review
- NIS – Fluid Flow (Volume of liquid), JCRB review
- NIS – Density (Density of solids & density of liquids (hydrometers)), Torque & Hardness, Intra-Review

Update on AFRIMETS.TC-M Comparisons

Identify	Quantity/Range	Field	Status	Pilot
AFRIMETS.M.FF-K4.2.2015	100 μ L	Fluid Flow	Completed, August 2020	NIS/IPQ
AFRIMETS.M.F-S2	500 kN	Force	Completed, April 2021	KEBS
AFRIMETS.M.D-S4	(0.65-0.7 & 1.2 - 1.25) kg/m ³	Density (Hydrometers)	Draft B	NIS
AFRIMETS.M.M-K7	0.5 g - 5 kg	Mass	Draft B in progress	NIS
AFRIMETS.M.F-S1	(10 & 100) kN	Force	Draft A	KEBS
AFRIMETS.M.P-K2	(10 - 110) kPa	Pressure	Measurements in progress	NMISA
AFRIMETS.M.FF-S1	(50 - 5 000) mL/min	Fluid Flow	Measurements in progress.	NMISA/INRIM

Update on Comparison longer than 5 years

AFRIMETS.M.P-K2

- Comparison was initially registered in 2012/13
- Artefact was stuck in Tunisia from 2015 to 2018
- Contact person resigned from the Pilot laboratory in 2015
- The ILC was re-started again in 2019 with slightly changed list of participants, however, status is not yet updated on KCDB 2.0
- Last laboratory to complete measurements August 2021??

Planned Comparisons

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

Planned Comparisons

Year	Identifier	Description	Participants	Pilot	Status
2022	AFRIMETS.M.T-SX	Torque Transducers	NIS, NMISA, LPEE/LNM, KEBS	NIS	Planned
2022	AFRIMETS.M.FF-SX	Volume, 20L	KEBS, to be decided	KEBS	Planned

Structure of AFRIMETS.TC-M

- TC M mirror the CCM structure.
- TC M – Chair: Mr Thomas Mautjana, Vice Chair: Mr Dominic Ondoro
- TC M has the following working groups:

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



Thank You