



UGANDA NATIONAL BUREAU OF STANDARDS

CERTIFICATE OF LABORATORY RECOGNITION

Certificate No: UNBS/LRS/0017

This certificate is valid as per the scope stated in the accompanying schedule of recognition, Annex "A" which is an integral part of the present certificate bearing the above recognition number for

Cook Stove Testing

In accordance with the recognised International Standard **ISO/IEC 17025:2017**

Being supplied to

CENTRE FOR RESEARCH IN ENERGY AND ENERGY CONSERVATION LIMITED

College of Engineering, Design, Art and Technology, Makerere University
P. O. Box 7062, Kampala Uganda.

The recognition demonstrates technical competence and the operation of a laboratory quality management system to perform the tests as described in the Annex. While this certificate remains valid, the recognised laboratory above is authorised to use the relevant UNBS recognition number to issue facility reports and /or certificates.

Recognition Decision Date: 2024-10-11
Date of original issue: 2019-05-06
Certificate Issue No: 04

Effective Date: 2024-10-11
Expiry date: 2027-05-05
Certificate Issue date: 2024-10-11

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Management Signatory
UGANDA NATIONAL BUREAU OF STANDARDS



ANNEX A

SCHEDULE OF RECOGNITION – TESTING LABORATORIES

Facility Number	UNBS/LRS/0017	S/N	Technical Signatories	Method
CENTRE FOR RESEARCH IN ENERGY AND ENERGY CONSERVATION LIMITED P.O. Box 7062, KAMPALA, UGANDA. COLLEGE OF ENGINEERING, DESIGN, ART AND TECHNOLOGY, MAKERERE UNIVERSITY.		1.	Agnes Naluwagga (Technical Signatory)	Water boiling test protocol – version 4.2.3, ICSEA rating test protocol for East Africa – version 2.0, US ISO 19867-1:2018, US 761:2019 and Emissions test and Durability test
		2.	Derrick Kiwana (Analyst)	Water boiling test protocol – version 4.2.3, ICSEA rating test protocol for East Africa – version 2.0, US ISO 19867-1:2018, US 761:2019 and Emissions test
		3.	Claire Turyahebwa (Analyst)	Water boiling test protocol – version 4.2.3, ICSEA rating test protocol for East Africa – version 2.0, US ISO 19867-1:2018, US 761:2019 and Durability test
		4.	Jimmy Agaba (Analyst)	Water boiling test protocol – version 4.2.3, ICSEA rating test protocol for East Africa – version 2.0, US ISO 19867-1:2018, US 761:2019
Material or products tested	Type of tests/property measured, Range of Measurement	Standard specifications, Techniques/Equipment used		
TESTING FIELD – BIOMASS ENERGY				
Cook Stoves	Thermal performance test (Efficiency, Fuel use, Time to boil)	Water boiling test protocol – version 4.2.3, ICSEA rating test protocol for East Africa version 2.0, US ISO 19867-1:2018, US 761:2019		
	Emissions test <ul style="list-style-type: none">Carbon monoxide COCarbon dioxide CO₂Particulate matter PM₂₅Black Carbon BC	Laboratory Emissions monitoring System (2029) LEMS, Flue gas analyzer (Testo 350), Gravimetric system with analytical scale, Transmissometer Aethalometer (soot scan) model OT21		
	Safety test <ul style="list-style-type: none">sharp edges and pointsCook stove tippingContainment of fuelObstruction near cooking surfaceSurface temperatureHeat transfer to the environmentHandle temperatureChimney shieldingFlames surrounding cookpot	Biomass stove safety protocol version 1.0		

	<ul style="list-style-type: none"> Flames exiting fuel chamber, canister or pipes 	
	Controlled Cooking Test (CCT) <ul style="list-style-type: none"> Specific fuel consumption Cooking time 	Controlled cooking test- version 2.0
	Kitchen performance test (KPT) <ul style="list-style-type: none"> Daily fuel use Fuel use per capita 	Kitchen performance test version 3.0
	Daily Tests <ul style="list-style-type: none"> Extended run test External impact test Internal impact Corrosion testing Coating adhesion Quenching Material failure temperature 	Cook stove durability protocol version 10

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 MANAGER CERTIFICATION DEPARTMENT