UNIQUE CALIBRATION SOLUTIONS LLP

An ISO/IEC-17025:2017 / ACCREDITED BY NABL

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CC-3102

CALIBRATION CERTIFICATE

ULR NO :	CC310224000001063F	CERTIFICATE No. :	UCSL/04-24/091_03
Customer Name & Address:		Instrument receipt Date	16.04.2024
M/s. MICRO HEALTH LABORATORIES		SRF No.	091
MP TOWER, NEXT TO LAVANYA PLAZA, NEAR THALUK HOSPITAL, THAMARASSERY, KERALA - 673 573		Calibration Date	17.04.2024
		Next calibration date (As per customer request)	17.04.2025
		Certificate Issue date	23.04.2024

Identification on DUC (Device Under Calibration)

Instrument Name	MICROPIPETTE	Make	THERMO SCIENTIFIC
Range	20 - 200 µl	Model	FINN PIPETTE
Least count	1 µl	Instrument Condition	OK
Serial No.	MW19904	Calibration Performed at	Mass & Volume Lab
Instrument ID	MHL/TSY/14	Location	---

Environmental Condition	Avg.Temperature (°C)	Avg.RH (%)	Avg.Atmospheric Pressure (hpa)
	23.1	55	1010

Equipment & Master Used For calibration

Instrument Used	Calibrated By	ID No:	Certificate No	Valid Upto	Sr No.	Accreditation No
Weighing Balance	EIE	---	EIE/M/231046	30.07.2024	T1004465	CC-2222
Weighing Balance	UCSL	UCSL-WB-01	UCSL/10-23/311_01	14.10.2024	0037905909	CC-3102

Method Used : Gravimetric method	**Discipline & Category** : Mechanical - Volume
Calibration Reference Standard	**Calibration Procedure**
ISO-8655-6 & ISO /TR 20461	UCSL/SOP/01-MPT

CALIBRATION RESULTS :-

1. Lower Volume 20 µl

1	2	3	4	5	6	7	8	9	10	Mean Volume V
20.17	20.17	20.14	20.17	20.15	20.18	20.18	20.18	20.20	20.15	20.17

		Error Limits			Error Limits
Systamatic Error es µl :	-0.17	(± 1.6 µl)	Random Error in sr µl :	0.02	(± 0.6 µl)
Systamatic Error es in % :	-0.85	(± 8.0 %)	Random Error in Cv in % :	0.08	(± 3.0 %)

2. Middle Volume 100 µl

1	2	3	4	5	6	7	8	9	10	Mean Volume V
101.27	101.38	100.45	101.38	101.37	101.35	101.38	101.42	101.24	101.42	101.26

		Error Limits			Error Limits
Systamatic Error es µl :	-1.26	(± 1.6 µl)	Random Error in sr µl :	0.29	(± 0.6 µl)
Systamatic Error es in % :	-1.26	(± 1.6 %)	Random Error in Cv in % :	0.29	(± 0.6 %)

3. Nominal Volume 200 µl

1	2	3	4	5	6	7	8	9	10	Mean Volume V
201.17	201.08	201.13	200.82	201.34	201.24	201.54	201.23	201.18	200.88	201.16

		Error Limits			Error Limits
Systamatic Error es µl :	-1.16	(± 1.6 µl)	Random Error in sr µl :	0.21	(± 0.6 µl)
Systamatic Error es in % :	-0.58	(± 0.8 %)	Random Error in Cv in % :	0.10	(± 0.3 %)

Decision Rule is Applied or Not	Yes	No
		✓

Conclusion /Remarks:

The Reported Uncertainity ***from 20 µl to 100 µl is 0.12µl and at 200 µ l is 0.60 µl*** *at ,Coverage Factor K=2,which corresponds to a confidence level at approximately 95 %*

1. The calibration results reported in this certificate are valid at the time of and the stated condition of measurement.
2. **This report is valid for Scientific & Industrial Purpose Only**
3. This report should not be reproduced except in full without our prior permission in writing.
4. Calibration certificate without signature are not valid.
5. This Calibration Certificate relates only to the above DUC
6. DUC : Device under calibration
7. All the measurements are traceable to SI units through unbroken chain of calibration from the competent laboratories as per ISO/IEC 17025 standard requirements.

Calibrated by **Checked By** **Issued / Approved By**

(APPU K MANI)

Technical Director

--- End of Certificate ---

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