



MEASURE TECHNO LAB

2, B.T. ROAD (JAYANTI CINEMA COMPLEX), BARRACKPORE,
KOLKATA - 700120, W.B.



CC - 2545

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CALIBRATION CERTIFICATE OF MICRO PIPETTE

CALIBRATION CERTIFICATE NO.: MTL / HE / R07 / 09 - 24

ULR - CC254524000045115F

Page: 1 of 1

1.0 Service Request No.: MTL / 13A / 09 / 24 - 25

1.1 Issued to: M/s. Halder Enterprise,
458 / 1A, Motilal Colony,
P.O. - Rajbari, P.S. - Airport, Pin - 700081.

1.2 Description & Identification of item to be Calibrated:	a) Name:	Micro Pipette	b) Code No.:	HE / MP - 02
	c) Sl. No.:	TD738002	d) Make:	Meril
	e) Model / Type:	Merilette	f) Range:	5 µl to 50 µl
	g) Sensor:	N.A.	h) Resolution:	0.5 µl
	i) End User:	Laboratory	j) Accuracy:	N.S.
	k) Calibration done at:	On Site / √ In House		

1.3 Date of receipt of item : 13-09-24

1.4 Physical Condition of DUC : OK

1.5 Date of calibration : 14-09-24

1.6 Recommended date of next calibration : 14-09-25

1.7 Date of Issue : 16-09-24

1.8 Environmental Conditions During Calibration:

Temperature:	20 °C ± 2 °C
Humidity:	30 % RH to 75 % RH
Pressure:	1003 mbar

1.9 Method of Calibration: SOP / MASS / 02 (As Per ISO : 8655 - 6 : 2022)

2.0 Traceability :

a) Standards used for calibration are traceable to National standards through NABL Accredited Laboratory.

b) The following standards / Equipment have been used.

- i) Weights Cal. Certificate No. NC-210 (NSTAR, Ahmedabad) (Cal. Date: 16/05/22, Due Date: 15/05/25)
- ii) Digital Thermometer With Sensor Cal. Certificate No. MTL / TH / DTM / R01 / 09 - 23 (MTL, Barrackpore) (Cal. Date: 15/09/23, Due Date: 15/09/24)

2.1 Result :

Mechanical Calibration: (Mass & Volume)

Sl. No.	Parameter/ Range	Nominal Value µl	Mass of Water mg	Volume of Water at 20 °C µl	Error µl	Measurement Expanded Uncertainty ± µl
1.	Volume	5	4.8542	4.8736	-0.1264	0.031
2.	5 µl to 50 µl	25	24.7070	24.8058	-0.1942	0.32
3.		50	49.4938	49.6918	-0.3082	0.32

Remarks: i) Cubical Expansion co-efficient of pipette material taken as $10^{-5} \mu\text{l} / ^\circ\text{k}$.

ii) This result has an expanded uncertainty with a coverage factor $k=2$ at approximately 95% confidence level.

iii) The calibration certificate issued for this instrument is to be used for scientific or industrial purposes only.

iv) Calibrations are carried out without any adjustment or repair.

DUC - Device Under Calibration

N.S. - Not Specified

N.A. - Not Applicable

Opinions and Interpretations

Calibrated	√	Accepted / Valid for use
Limited Use		Rejected / Out of use

Calibration Engineer
 Measure Techno Lab
 Kolkata
 Calibration Engineer

Checked & Approved by:

 Quality / Technical Manager
 S. Pandey