



# MEASURE TECHNO LAB

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



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## CALIBRATION CERTIFICATE OF MICRO PIPETTE

CALIBRATION CERTIFICATE NO.: MTL / MCL / R05 / 12 - 23

ULR - CC254523000042521F

CC - 2545

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1.0 Service Request No.: MTL / 12B / 12 / 23 - 24

1.1 Issued to: M/s. Mukherjee Clinical Laboratory,  
43/C/5, Jatindra Sarani, Champadali,  
North 24 Parganas, Kolkata - 700124.

|  |                         |                      |                |                   |
|--|-------------------------|----------------------|----------------|-------------------|
| 1.2 Description & Identification of item to be Calibrated: | a) Name:                | Micro Pipette        | b) Code No.:   | MCL / MP / 03     |
|  | c) Sl. No.:             | SW10908              | d) Make:       | Thermo Scientific |
|  | e) Model / Type:        | N.S.                 | f) Range:      | 5 µl to 50 µl     |
|  | g) Sensor:              | N.A.                 | h) Resolution: | 0.1 µl            |
|  | i) End User:            | Lab                  | j) Accuracy:   | N.S.              |
|  | k) Calibration done at: | On Site / √ In House |                |                   |

1.3 Date of receipt of item : 12-12-23

1.4 Physical Condition of DUC : OK

1.5 Date of calibration : 12-12-23

1.6 Recommended date of next calibration : 12-12-24

1.7 Date of Issue : 14-12-23

1.8 Environmental Conditions During Calibration:

|              |                    |
|--------------|--------------------|
| Temperature: | 20 °C ± 2 °C       |
| Humidity:    | 30 % RH to 75 % RH |
| Pressure:    | 1010 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                | 5.0959           | 5.1163                      | 0.1163   | 0.032                                 |
| 2.      | 5 µl to 50 µl    | 25               | 24.7565          | 24.8555                     | -0.1445  | 0.32                                  |
| 3.      |                  | 50               | 49.9927          | 50.1927                     | 0.1927   | 0.33                                  |

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  
S. Mahapatra  
Calibration Engineer

Checked / APPROVED

Quality / Technical Manager  
S. Pandey

Form No. - MTL/22/2006

Issue No. : 2 Issue Date : 10.11.06

Rev. No. : 04 Rev. Date : 01.04.22