



Perfect Calibration Centre Pvt. Ltd.

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CC - 2207

NABL LAB FOR : MECHANICAL • THERMAL • ET • AIR / FLUID FLOW • FORCE • MASS • OPTICAL

CERTIFICATE OF CALIBRATION

ULR-CC220722000023609F

ISSUE DATE: 26/04/2022

CUSTOMER : M/s.SRI SAMRAJ LABS.,
ADDRESS : 1A/24,BHARATH TOWERS,BY PASS ROAD,
THIRUVARUR-610 001.
CUST REF : SRF.NO : 1864 , DATE : 26/04/2022
DEPT : MECHANICAL LAB

CERTIFICATE NO. : PC - 04-22 / ATL / 1864-06

CAL DATE : 26/04/2022

DUE DATE : 25/04/2023

PAGE NO. : 1/1

DISCIPLINE : MECHANICAL

MICRO PIPETTE

DATE OF RECEIPT : 26/04/2022
PHYSICAL CONDITION : SATISFACTORY

TEMPERATURE : 20.4°C
HUMIDITY : 51% RH

ATMOSPHERIC PRESSURE : 1002.2

Z FACTOR : 1.0029 $\mu\text{L}/\text{mg}$

PIPETTE DETAILS :

MAKE : THERMO SCIENTIFIC **MODEL** : FINNPIPETTE F2
TYPE : VARIABLE **RANGE** : 20-200 μL
ID. NO. : SSLTVR / EQP / MT / 29 **L.C.** : 0.2 μL
SL NO. : SW 22862

STANDARD USED	SL.NO/ID.NO	CERT. NO.	VALIDITY
ELECTRONIC BALANCE	37014 / PCCPL/EB - 01	PC-09-21 /ATL / 3518 - 01	12/09/2022
ELECTRONIC BALANCE	1125510540 / PCCPL/EB - 02	PC-09-21 /ATL / 3518 - 02	12/09/2022

CALIBRATION PROCEDURE : WI-M-MP-44(L)

REFERENCE STANDARD : ISO 8655-6 & ISO/ TR 20461

CALIBRATION RESULTS

1. LOWER VOLUME

20 μL

NO. OF MEASUREMENT : 10

19.96	19.86	19.76	19.76	19.86	19.96	19.86	19.76	19.76	19.86
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MEAN VOLUME: **19.83736**

ERROR LIMIT

ERROR LIMIT

SYSTEMATIC ERROR (e_s) μL : **0.16264** ($\pm 0.2\mu\text{L}$) RANDOM ERROR (S_r) μL : 0.079110 ($\pm 0.5\mu\text{L}$)

SYSTEMATIC ERROR (e_s) in % : 0.162638 ($\pm 1.0\%$) RANDOM ERROR (C_v) % : 0.39879 ($\pm 0.1\%$)

2. MIDDLE VOLUME

100 μL

NO. OF MEASUREMENT : 10

100.59	100.49	100.79	100.99	100.59	101.09	101.19	100.59	100.49	100.99
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MEAN VOLUME: **100.78142**

ERROR LIMIT

ERROR LIMIT

SYSTEMATIC ERROR (e_s) μL : **0.78142** ($\pm 0.8\mu\text{L}$) RANDOM ERROR (S_r) μL : 0.26513 ($\pm 0.3\mu\text{L}$)

SYSTEMATIC ERROR (e_s) in % : 0.781421 ($\pm 0.8\%$) RANDOM ERROR (C_v) % : 0.26308 ($\pm 0.3\%$)

3. UPPER VOLUME

200 μL

NO. OF MEASUREMENT : 10

201.59	201.66	201.49	201.54	201.60	201.64	201.71	201.59	201.62	201.63
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MEAN VOLUME: **201.60998**

ERROR LIMIT

ERROR LIMIT

SYSTEMATIC ERROR (e_s) μL : **1.60998** ($\pm 1.6\mu\text{L}$) RANDOM ERROR (S_r) μL : 0.06165 ($\pm 0.6\mu\text{L}$)

SYSTEMATIC ERROR (e_s) in % : 0.804989 ($\pm 0.8\%$) RANDOM ERROR (C_v) % : 0.13049 ($\pm 0.3\%$)

UNCERTAINTY OF MEASUREMENTS $\pm 0.27\mu\text{L}$

UNCERTAINTY MULTIPLIED BY THE COVERAGE FACTOR K=2 SUCH THAT THE COVERAGE PROBABILITY CORRESPONDS TO APPROXIMATELY 95%.


NOTE : THIS CALIBRATION CERTIFICATE IS VALID FOR SCIENTIFIC & INDUSTRIAL PURPOSE ONLY AND NOT APPLICABLE FOR COMMERCIAL PURPOSE

*** END OF CERTIFICATE ***


SRINIVASAN.V

ENGINEER
Calibrated / Checked by




VIDHYA.P

PREPARED BY




CHANDRA SEKAR.S

TECHNICAL MANAGER
Authorised Signatory

THIS REPORT RELATES ONLY TO THE ITEM(S) SUBMITTED. THIS REPORT SHALL NOT BE REPRODUCED EXCEPT IN FULL WITHOUT THE WRITTEN APPROVAL OF M/s. PERFECT CALIBRATION CENTRE PVT. LTD. ALL REFERENCE STANDARDS USED ARE TRACEABLE TO NATIONAL / INTERNATIONAL STANDARDS AS PER ISO / IEC 17025 - 2017 . THE RESULTS REPORTED ARE VALID AT THE TIME AND UNDER STATED CONDITIONS OF MEASUREMENTS. THE CALIBRATION INTERVAL IS TO BE DECIDED BY THE "USER" QF/7.8/01

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