

THE PIPETEMANN

NABL ACCREDITED CALIBRATION LABORATORY
ADDING ACCURACY TO YOUR EQUIPMENT

MASS - VOLUME - THERMAL - SPEED - PRESSURE - TIMER - ELECTRO TECHNICAL



CERT. NO. CC - 2317

CALIBRATION CERTIFICATE

CUSTOMER ADDRESS : M/s. CRISTAL LAB, OPP NEW BUS STAND, 11/2, ARTHANARI NAGAR, 2ND CROSS, SALEM 636004 Phone No.: 9500476699	
UNIQUE LAB REPORT NUMBER : ULR-CC231720000004147F	DISCIPLINE : MECHANICAL CALIBRATION
NAME OF EQUIPMENT : MICROPIPETTE	PARAMETER : VOLUME
CERTIFICATE NO : TPMCC201244654	DATE OF ISSUE : 07-12-2020
RECEIPT NO : 9572	TEMPERATURE : 25.9 °C
RECEIPT DATE : 05-12-2020	HUMIDITY : 53 %
JOB CARD NO : TPM175122043077	AIR PRESSURE : 966 hpa
JOB CARD DATE : 05-12-2020	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : DRAGON LAB	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 100-1000 µl	DENSITY CORRECTION FACTOR [Z] : 1.0037 µl/mg
SERIAL NO : YE5E482895	CALIBRATION METHOD : ISO 8655:2002 PART - 6
TIPS USED : 1000 µl	WEIGHING BALANCE : SEMI MICRO BALANCE
SCOPE OF ACCREDITATION : VOLUME - MICROPIPETTE (1 µl - 10000 µl)	

DETAILS OF MASTER EQUIPMENTS USED FOR CALIBRATION

MASTER EQUIPMENT	: SARTORIUS
SL.NO	: 19402655
RESOLUTION	: 0.00001 g upto 80 g & above is 0.0001 g
CALIBRATED BY	: THE PIPETEMANN(MASS), COIMBATORE
CERTIFICATE NUMBER	: TPMCCM20050245
CALIBRATION VALIDITY	: 06-05-2021
TRACEABILITY	: NATIONAL STANDARDS

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CERTIFICATE NO : TPMCC201244654

CALIBRATED PARAMETER : VOLUME		
NO.OF MEASUREMENTS : 10		
I) SELECTED VOLUME : 1000 μ l		
1002.39 μ l	1002.47 μ l	1002.5 μ l
1002.66 μ l	1002.45 μ l	1002.5 μ l
1002.39 μ l	1002.4 μ l	1002.39 μ l
1002.45 μ l		
MEAN VALUE : 1002.46 μ l		Standard Limit Value
SYSTEMATIC ERROR(es) : 2.46 μ l		($\pm 8.0 \mu$ l)
RANDOM ERROR (Sr) : 0.08 μ l		($\pm 3.0 \mu$ l)
II) SELECTED VOLUME : 500 μ l		
500.81 μ l	500.62 μ l	500.75 μ l
500.44 μ l	500.6 μ l	500.74 μ l
500.6 μ l	500.65 μ l	500.81 μ l
500.6 μ l		
MEAN VALUE : 500.66 μ l		Standard Limit Value
SYSTEMATIC ERROR(es) : 0.66 μ l		($\pm 4.0 \mu$ l)
RANDOM ERROR (Sr) : 0.12 μ l		($\pm 1.5 \mu$ l)
III) SELECTED VOLUME : 100 μ l		
100.23 μ l	100.12 μ l	100.06 μ l
100.16 μ l	100.22 μ l	100.02 μ l
99.97 μ l	99.92 μ l	100.06 μ l
100.12 μ l		
MEAN VALUE : 100.09 μ l		Standard Limit Value
SYSTEMATIC ERROR(es) : 0.09 μ l		($\pm 0.8 \mu$ l)
RANDOM ERROR (Sr) : 0.1 μ l		($\pm 0.3 \mu$ l)
CALIBRATED ON : 07-12-2020		CALIBRATION DUE ON : 06-06-2021
RESULTS :		
RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)
1000 μ l	0.07 μ l	0.07 μ l
500 μ l	0.10 μ l	0.10 μ l
100 μ l	0.04 μ l	0.04 μ l
With coverage factor k is 2 for effective degrees of freedom is ∞ and the confidence level is 95%		
CALIBRATED BY :		APPROVED BY :
(M.DHARMARAJ)		(K.BALAMAYURPRIYAN)
CALIBRATION ENGINEER		TECHNICAL MANAGER.
NOTE : 1.Master equipments used for calibration are traceable to National standards		
2.The calibration reported are valid at the time of and under the stated conditions of the measurement		
3.Results presented in this certificate relate only to the item mentioned & calibrated at THE PIPETEMANN		
4.This certificate shall not be reproduced except in full without written approval of THE PIPETEMANN		