

# THE PIPETEMANN

NABL ACCREDITED CALIBRATION LABORATORY  
ADDING ACCURACY TO YOUR EQUIPMENT

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



## CALIBRATION CERTIFICATE

CUSTOMER ADDRESS : M/s. K.M.MICRO LABORATORY, 267-B, OPPOSITE TO SHOBIKA READYMADE, DINDIGUL ROAD,  PALLAPATTI 639207 Phone No.:	
UNIQUE LAB REPORT NUMBER : ULR-CC231721000002883F	DISCIPLINE : MECHANICAL CALIBRATION
NAME OF EQUIPMENT : MICROPIPETTE	PARAMETER : VOLUME
CERTIFICATE NO : TPMCC210847891	DATE OF ISSUE : 07-08-2021
RECEIPT NO : 10119	TEMPERATURE : 24.5 °C
RECEIPT DATE : 07-08-2021	HUMIDITY : 53 %
JOB CARD NO : TPM911082146314	AIR PRESSURE : 959 hpa
JOB CARD DATE : 07-08-2021	MEDIUM OF WEIGHING : GRADE III WATER
BRAND : AGD BIOMEDICAL (P) LTD	DENSITY OF MEDIUM : APPROXIMATELY 1
RANGE : 100-1000 µl	DENSITY CORRECTION FACTOR [Z] : 1.0037 µl/mg
SERIAL NO : 101701601	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	: SHIMADZU
SL.NO	: D450020184
RESOLUTION	: 0.00001g upto 82g & above is 0.0001g
CALIBRATED BY	: THE PIPETEMANN (MASS), COIMBATORE
CERTIFICATE NUMBER	: TPMCCM21020283
CALIBRATION VALIDITY	: 05-02-2022
TRACEABILITY	: NATIONAL STANDARDS

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CERTIFICATE NO : TPMCC210847891

**CALIBRATED PARAMETER** : VOLUME  
**NO.OF MEASUREMENTS** : 10

I) **SELECTED VOLUME** : 1000  $\mu$ l

1000.58 $\mu$ l	1000.44 $\mu$ l	1000.49 $\mu$ l	1000.65 $\mu$ l	1000.49 $\mu$ l	1000.4 $\mu$ l	1000.53 $\mu$ l	1000.65 $\mu$ l	1000.39 $\mu$ l	1000.44 $\mu$ l
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MEAN VALUE : 1000.51  $\mu$ l  
SYSTEMATIC ERROR(es) : 0.51  $\mu$ l  
RANDOM ERROR (Sr) : 0.1  $\mu$ l

Standard Limit Value  
( $\pm$ 8.0  $\mu$ l)  
( $\pm$ 3.0  $\mu$ l)

II) **SELECTED VOLUME** : 500  $\mu$ l

501.54 $\mu$ l	501.63 $\mu$ l	501.66 $\mu$ l	501.54 $\mu$ l	501.62 $\mu$ l	501.74 $\mu$ l	501.65 $\mu$ l	501.6 $\mu$ l	501.51 $\mu$ l	501.6 $\mu$ l
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MEAN VALUE : 501.61  $\mu$ l  
SYSTEMATIC ERROR(es) : 1.61  $\mu$ l  
RANDOM ERROR (Sr) : 0.07  $\mu$ l

Standard Limit Value  
( $\pm$ 4.0  $\mu$ l)  
( $\pm$ 1.5  $\mu$ l)

III) **SELECTED VOLUME** : 100  $\mu$ l

100.06 $\mu$ l	100.15 $\mu$ l	100.18 $\mu$ l	100.26 $\mu$ l	100.03 $\mu$ l	100.15 $\mu$ l	100.31 $\mu$ l	100.26 $\mu$ l	100.06 $\mu$ l	100.02 $\mu$ l
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MEAN VALUE : 100.15  $\mu$ l  
SYSTEMATIC ERROR(es) : 0.15  $\mu$ l  
RANDOM ERROR (Sr) : 0.1  $\mu$ l

Standard Limit Value  
( $\pm$ 0.8  $\mu$ l)  
( $\pm$ 0.3  $\mu$ l)

CALIBRATED ON : 07-08-2021

CALIBRATION DUE ON : 06-02-2022

## RESULTS :

RANGE	MEASUREMENT UNCERTAINTY	CMC (approved by NABL)
1000 $\mu$ l	0.07 $\mu$ l	0.07 $\mu$ l
500 $\mu$ l	0.10 $\mu$ l	0.10 $\mu$ l
100 $\mu$ l	0.04 $\mu$ l	0.04 $\mu$ l

With coverage factor k is 2 for effective degrees of freedom is  $\infty$  and the confidence level is 95%

CALIBRATED BY :

(M.DHARMARAJ)  
CALIBRATION ENGINEER

APPROVED BY :

(K.BALAMAYURPRIYAN)  
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**