

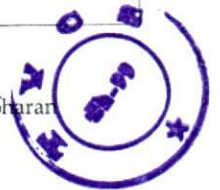


CERTIFICATE OF CALIBRATION

FT-Q-25			
ULR No.	: CC214423000001141F	Date of Issue	: 03-03-2023
Certificate No.	: TVCSPL 23/03/393-01	Recom. Due Date	: 29-02-2024
Date of Calibration	: 01-03-2023	SRF No.	: 393
Customer Details	: M/s. REGIONAL RESEARCH INSTITUTE OF UNANI MEDICINE, NO.1,WEST MATHA CHURCH ROAD,ROYAPURAM, CHENNAI-600013.	Calibrated at	: Lab
		Date of Receipt	: 01-03-2023
		Cond. On Receipt	: Satisfactory
Details of Test Instrument:			
Description	: Micropipette	Model No.	: NA
Range	: 5-50µl	Serial No.	: HQ14409
Least Count	: 0.5µl	Id. No.	: RRIUMC EQ BC 013
Make	: ERBAPETTE	Accuracy	: As per Manual
Operating Range	: 40µl		
Location	Instrumentation Room, Dept Of Bio Chemistry		
Details of Standard Used			
Name	Certificate No.	Valid upto	Traceability
Weighing Machine	TVCSPL 22/03/392-01	07-Mar-23	TVCSPL, Chennai.
Weighing Machine	TVCSPL 23/02/366-03	26-Feb-24	TVCSPL, Chennai.
Work Instruction	: WI-M-03		
Environmental Details	: Temperature : 25±2°C Relative Humidity : 50±10 % RH		
<b>MECHANICAL CALIBRATION</b>			
(Volume)			
<b>Calibration Results</b>			
1. Lower Volume :	5 µl	No. of Measurements :	10
<input type="text" value="5.044"/>	<input type="text" value="5.055"/>	<input type="text" value="5.068"/>	<input type="text" value="5.039"/>
<input type="text" value="5.032"/>	<input type="text" value="5.075"/>	<input type="text" value="5.051"/>	<input type="text" value="5.032"/>
<input type="text" value="5.035"/>	<input type="text" value="5.042"/>		
Mean Value :	5.047 µl		
<b>Error Limits(±)</b>			
Systematic Error :	0.047 µl	0.125 µl	
Systematic Error :	0.95 %	2.50 %	
Random Error :	0.01 µl	0.08 µl	
Random Error :	0.30 %	1.50 %	
Measurement Uncertainty :	± 0.094 µl		

Calibrated by :  
*Vishnu Priyai*  
 Ms.K.Vishnu Priyai  
 (Calibration Engineer)

Authorised by:  
*Anand Manoharan*  
 Mr. Anand Manoharan  
 (QM & TM)



...redefining the true value





ULR No. : CC214423000001141F Page 2 of 2  
 Certificate No. : TVCSPL 23/03/393-01

**MECHANICAL CALIBRATION**

(Volume)

**Calibration Results**

2. Middle Volume : 25 µl No. of Measurements : 10

25.02	24.88	24.92	25.05
24.89	25.00	25.08	25.10
24.93	25.00		

Mean Value : 24.98 µl

**Error Limits(±)**

Systematic Error :	-0.02	µl	0.50	µl
Systematic Error :	-0.06	%	1.00	%
Random Error :	0.08	µl	0.20	µl
Random Error :	0.30	%	0.40	%

Measurement Uncertainty : ± 0.26 µl

3. Nominal Volume : 50 µl No. of Measurements : 10

49.96	50.08	49.96	50.15
50.16	50.08	50.16	50.06
50.13	50.15		

Mean Value : 50.09 µl

**Error Limits(±)**

Systematic Error :	0.09	µl	0.50	µl
Systematic Error :	0.17	%	1.00	%
Random Error :	0.08	µl	0.20	µl
Random Error :	0.15	%	0.40	%

Measurement Uncertainty : ± 0.26 µl

**Remarks**

1. The reported Expanded Uncertainty is calculated at 95.45 % C.I. with coverage factor  $k=2$
2. The above Micropipette was within the error limits

\* End of Certificate \*

Calibrated by :

*Vishnu Priyai*  
 Ms.K.Vishnu Priyai  
 (Calibration Engineer)

Authorised by:

*David Manoharan*  
 Mr. Anand Manoharan  
 (QM & TM)



*...redefining the true value*





CERTIFICATE OF CALIBRATION

FT-Q-25		Page 1 of 2	
ULR No.	: CC214423000001218F	Date of Issue	: 07-03-2023
Certificate No.	: TVCSPL 23/03/416-01	Recom. Due Date	: 05-03-2024
Date of Calibration	: 06-03-2023	SRF No.	: 416
Customer Details		Calibrated at	: LAB
M/s. True Value Calibration Services Pvt. Ltd.,		Date of Receipt	: 06-03-2023
No. 92, S. R. B. Nagar Main Road,		Cond. On Receipt	: Satisfactory
Kolathur,			
Chennai - 600 099.			
Details of Test Instrument:			
Description	: Electronic Micro Balance	Model No.	: MSE 3-6P-000-DM
Range	: 0 to 1.1g/2.1/3.1g	Serial No	: 36101007
Least Count	: 0.001mg/0.002mg/0.005mg	Identification No.	: TVCSPL/MECH/WB-011
Make	: Sartorius	Class(OIML)	: Class I
Working range	: 1mg to 2g	Location	: MASS LAB 1
Verification Interval(e)	: 0.01mg		
Details of Standard Used :			
Name	Certificate No.	Valid upto	Traceability
E1 Class Standard Weights	TVCSPL 22/05/694-03	03-May-23	TVCSPL, Chennai.
Work Instruction	: WI-M-01		
Environmental Details	Temperature: 25±5 °C	Relative Humidity:	40-70 % RH

Calibrated by :  
*K. Kameswaran*  
 Mr.K.Kameswaran  
 (Calibration Engineer)

Authorised by:  
*Anand Manoharan*  
 Mr.Anand Manoharan  
 (QM & TM)



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ULR No. : CC214423000001218F  
 Certificate No. : TVCSPL 23/03/416-01

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**MECHANICAL CALIBRATION**  
 (Weighing Scale & Balance)  
**Calibration Results**

1. Weighing Error Test

Sr. No.	Applied Mass (g)	Test Reading (g)	Error (g)	MPE(±)g
1	0.001002	0.001000	-0.000002	0.000005
2	0.002002	0.002001	-0.000001	
3	0.005002	0.005000	-0.000002	
4	0.010001	0.010001	0.000000	
5	0.020001	0.020001	0.000000	
6	0.050003	0.050001	-0.000002	
7	0.100003	0.100001	-0.000002	
8	0.200003	0.200000	-0.000003	
9	0.499999	0.500000	0.000001	
10	1.000007	1.000000	-0.000007	0.000010
11	2.000008	2.000000	-0.000008	
12	3.000015	3.000000	-0.000015	

2. Repeatability

Sr. No.	@ Zero (g)	50% of Range (g)	100% of Range (g)
1	0.000000	1.000000	2.000002
2	0.000000	1.000000	2.000000
3	0.000000	1.000000	2.000000
4	0.000000	1.000000	2.000002
5	0.000000	1.000000	2.000000
6	0.000000	1.000001	2.000002
7	0.000000	1.000001	2.000000
8	0.000000	1.000000	2.000002
9	0.000000	1.000001	2.000002
10	0.000000	1.000001	2.000002

Repeatability (SD) ± 0.000001 g

Remarks

- UUC is defined as the Unit Under Calibration
- Expanded uncertainty** ± 0.0000032 g
- The reported uncertainty is at coverage k=2 which correspond to a coverage probability of approximately 95.45% for a normal distribution. The Contribution of uncertainty, originating from the standards(s) & balance(s) used, the weighing process are into account
- M/s.TVCSPL, Chennai General Laboratory Practice are derived from ISO/IEC:17025. It therefore meets the relevant requirements of ISO:9001 when acting as the supplier providing test/calibration result
- The result provided in this certificate is confidential. The calibration certificate shall not be reproduced in part or in full without written approval of M/s.TVCSPL.
- With respect to the above specified requirements the balance was within the limits
- This calibration certificate will not be legal for the purpose of the standard of "Weight & Measure (enforcement) act 2011

\* End of Certificate \*

Calibrated by :

*K. Kameswaran*  
 Mr.K.Kameswaran  
 (Calibration Engineer)

Authorised by:

*Anand Manoharan*  
 Mr.Anand Manoharan  
 (QM & TM)



*...redefining the true value*



CC-2144

## CERTIFICATE OF CALIBRATION

FT-Q-25		Page 1 of 2	
ULR No.	: CC214423000001113F	Date of Issue	: 28-02-2023
Certificate No.	: TVCSPL 23/02/366-03	Recom. Due Date	: 26-02-2024
Date of Calibration	: 27-02-2023	SRF No.	: 366
Customer Details		Calibrated at	: LAB
M/s. True Value Calibration Services Pvt. Ltd.,		Date of Receipt	: 27-02-2023
No. 92, S. R. B. Nagar Main Road,		Cond. On Receipt	: Satisfactory
Kolathur,			
Chennai - 600 099.			
Details of Test Instrument:			
Description	: Electronic Semi Micro Balance	Model No.	: MSA 225 S-000-DA
Range	: 0 to 220g	Serial No	: 28601485
Least Count	: 0.01mg	Identification No.	: TVCSPL/MECH/WB-07
Make	: Sartorius	Class(OIML)	: Class I
Working range	: 1mg to 200g	Location	: MASS LAB 1
Verification Interval(e)	: 0.1mg		
Details of Standard Used			
Name	Certificate No.	Valid upto	Traceability
E1 Class Standard Weights	TVCSPL 22/05/694-03	03-May-23	TVCSPL, Chennai.
Work Instruction	: WI-M-01		
Environmental Details	: Temperature: 25±5 °C	Relative Humid	40-70 % RH

### MECHANICAL CALIBRATION

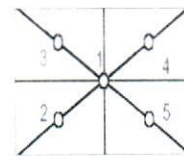
(Weighing Scale & Balance)

#### Calibration Results

##### 1. Eccentricity

Sr. No.	Position of Weights used	Test Reading (g)	Error between centre(1) and Other points (g)
1	3	50.00000	0.00001
2	4	50.00001	0.00000
3	1	50.00001	0.00000
4	2	50.00000	0.00001
5	5	50.00000	0.00001

Maximum Error between centre (1) and other points  
0.00001 g



Calibrated by :

*K. Kameswaran*  
Mr.K.Kameswaran  
(Calibration Engineer)

Authorised by:

*Anand Manoharan*  
Mr.Anand Manoharan  
(QM & TM)





ULR No. : CC214423000001113F  
 Certificate No. : TVCSPL 23/02/366-03

**MECHANICAL CALIBRATION**  
 (Weighing Scale & Balance)  
**Calibration Results**

2. Weighing Error Test

Sr. No.	Applied Mass (g)	Test Reading (g)	Error (g)	MPE(±)g
1	0.010001	0.01000	-0.000001	0.00005
2	0.499999	0.50000	0.000001	
3	1.000007	1.00000	-0.000007	
4	2.000008	2.00000	-0.000008	
5	5.00001	5.00000	-0.00001	
6	10.00001	10.00000	-0.00001	0.00010
7	20.00001	20.00000	-0.00001	
8	50.00002	50.00000	-0.00002	0.00015
9	100.00003	100.00000	-0.00003	
10	200.00004	200.00000	-0.00004	

3. Repeatability

Sr. No.	@ Zero (g)	50% of Range (g)	100% of Range (g)
1	0.00000	100.00000	200.00000
2	0.00000	100.00000	200.00000
3	0.00000	100.00000	200.00001
4	0.00000	100.00000	200.00001
5	0.00000	100.00000	200.00001
6	0.00000	100.00000	200.00001
7	0.00000	100.00001	200.00001
8	0.00000	100.00001	200.00001
9	0.00000	100.00001	200.00000
10	0.00000	100.00000	200.00000

Repeatability(SD)

± 0.000005 g

Remarks

- UUC is defined as the Unit Under Calibration
- Expanded uncertainty** ± 0.000025 g
- The reported uncertainty is at coverage k=2 which correspond to a coverage probability of approximately 95.45% for a normal distribution. The Contribution of uncertainty, originating from the standards(s) & balance(s) used, the weighing process are into account
- M/s.TVCSPL, Chennai General Laboratory Practice are derived from ISO/IEC:17025. It therefore meets the relevant requirements of ISO:9001 when acting as the supplier providing test/calibration result
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\* End of Certificate \*

Calibrated by :  
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 Mr.K.Kameswaran  
 (Calibration Engineer)

*...redefining the true value*

Authorised by:  
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 Mr.Anand Manoharan  
 (QM & TM)

