TRUEVALUE CALIBRATION SERVICES PVT LTD.,

CC-2144

CERTIFICATE OF CALIBRATION

FT-Q-25

ULR No.	:	CC214423000001260F			
Certificate No.	:	TVCSPL 23/03/431-01	Date of Issue	:	09-03-2023
Date of Calibration	:	08-03-2023	Recom. Due Date	:	07-03-2024
Customer Details	:		SRF No.	:	431
M/s. REGIONAL RESEARCH INSTITUTE OF UNANI MEDICINE, NO.1,WEST MATHA CHURCH ROAD,ROYAPURAM, CHENNAI-600013.			Calibrated at	:	Lab
			Date of Receipt	:	08-03-2023
			Cond. On Receipt	:	Satisfactory

Details of Test Instrument:

Description	:	Micropipette	Model No.	:	Biohit
Range	:	5-50µl	Serial No.	:	7049845
Least Count	:	0.5µl	Id. No.	:	RRIUMC EQ BC 014
Make	:	Erba	Accuracy	:	As per Manual
Operating Range	:	10µl			
Location	:	Instrumentation Room, Dept Of Bio Chemistry			

Details of Standard Used :

Name	Certificate No.	Valid upto	Traceability
Weighing Machine	TVCSPL 23/03/416-01	05-Mar-24	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

MECHANICAL CALIBRATION

(Volume)

Calibration Results

1. Lower Volume : 5 µl **No. of Measurements :** 10

5.037	5.045	5.079	5.071
5.095	5.039	5.101	5.077
5.065	5.059		

Mean Value : 5.067 µl

Error Limits(±)

Systematic Error :	0.067	µl	0.125	µl
Systematic Error :	1.34	%	2.50	%
Random Error :	0.02	µl	0.08	µl
Random Error :	0.45	%	1.50	%
Measurement Uncertainty :	±	0.094	µl	

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

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

ULR No.	:	CC214423000001260F	Page 2 of 2
Certificate No.	:	TVCSPL 23/03/431-01	

MECHANICAL CALIBRATION

(Volume)

Calibration Results

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

24.91	24.74	24.88	25.00
25.08	24.84	25.03	24.98
24.90	25.05		

Mean Value : 24.94 µl

			Error Limits(±)	
Systematic Error :	-0.06	µl	0.50	µl
Systematic Error :	-0.24	%	1.00	%
Random Error :	0.11	µl	0.20	µl
Random Error :	0.43	%	0.40	%

Measurement Uncertainty : ± 0.26 µl

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

49.87	49.84	49.98	49.86
49.92	50.08	50.00	49.89
50.05	49.86		

Mean Value : 49.93 µl

			Error Limits(±)	
Systematic Error :	-0.07	µl	0.50	µl
Systematic Error :	-0.13	%	1.00	%
Random Error :	0.09	µl	0.20	µl
Random Error :	0.17	%	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 :
Ms.K.Vishnu Priyai
(Calibration Engineer)

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

TRUE VALUE CALIBRATION SERVICES PVT LTD.,

CC-2144

CERTIFICATE OF CALIBRATION

FT-Q-25 — Page 1 of 2

ULR No.	: CC214423000001218F		
Certificate No.	: TVCSPL 23/03/416-01	Date of Issue	: 07-03-2023
Date of Calibration	: 06-03-2023	Recom. Due Date	: 05-03-2024
Customer Details		SRF No.	: 416
M/s. True Value Calibration Services Pvt. Ltd.,		Calibrated at	: LAB
No. 92, S. R. B. Nagar Main Road,		Date of Receipt	: 06-03-2023
Kolathur,		Cond. On Receipt	: Satisfactory
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:
Mr.Anand Manoharan
(QM & TM)

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

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	
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	0.000005
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	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

1. UUC is defined as the Unit Under Calibration
2. **Expanded uncertainty** ± **0.0000032** **g**
3. The reported uncertainity is at coverage k=2 which correspond to a coverage probability of approximately 95.45% for a normal distribution. The Contribution of uncetainity, originating from the standards(s) & balance(s) used, the weighing process are into account
4. 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
5. 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
6. With respect to the above specified requirements the balance was within the limits
7. 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:

Mr.Anand Manoharan
(QM & TM)

...redefining the true value

92, S.R.B Nagar Main Road,
Chennai - 600 099.
Tamil Nadu, India.

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CERTIFICATE OF CALIBRATION

FT-Q-25				Page 1 of 2	
ULR No.	: CC214423000001113F				
Certificate No.	: TVCSPL 23/02/366-03	Date of Issue	:	28-02-2023	
Date of Calibration	: 27-02-2023	Recom. Due Date	:	26-02-2024	
Customer Details		SRF No.	:	366	
M/s. True Value Calibration Services Pvt. Ltd.,		Calibrated at	:	LAB	
No. 92, S. R. B. Nagar Main Road,		Date of Receipt	:	27-02-2023	
Kolathur,		Cond. On Receipt	:	Satisfactory	
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 Humic	40-70 % RH

MECHANICAL CALIBRATION

(Weighing Scale & Balance)

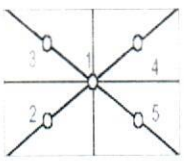
Calibration Results

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	
2	0.499999	0.50000	0.000001	
3	1.000007	1.00000	-0.000007	0.00005
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	
9	100.00003	100.00000	-0.00003	0.00015
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

1. UUC is defined as the Unit Under Calibration
2. **Expanded uncertainty** ± **0.000025** **g**
3. The reported uncertainity is at coverage k=2 which correspond to a coverage probability of approximately 95.45% for a normal distribution. The Contribution of uncetainity, originating from the standards(s) & balance(s) used, the weighing process are into account
4. 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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