



CERTIFICATE OF CALIBRATION

FT-Q-25		Page 1 of 1	
ULR No. :	CC29372000000826F	Date of Issue :	21-Nov-20
Certificate No :	TVCS 20/11/196 - 01	Recom. Due Date :	18-May-21
Date of Calibration :	19-Nov-20		
Customer Details		SRF No. :	196
M/s. ARULJOTHI X-RAY & LAB		Calibrated at :	Lab
No. 26, Pookadai Street,		Date of Receipt :	19-Nov-20
Rasipuram - 637407		Cond. On Receipt :	Satisfactory
Details of Test Instrument:			
Description :	Micropipette	Model No. :	Finnpipette
Range :	100µl	Serial No :	200183816
Least Count :	--	Identification No. :	--
Make :	Handypette	Accuracy :	As per Manual
Working range :	--	Location :	Lab
Details of Standard Used :			
Name	Certificate No.	Valid upto	Traceability
Electronic Semi Micro Balance	TVCSPL 20/05/364-01	12-May-21	TVCSPL, Chennai.
Work Instruction :	WI-M-03 (Reference Standard ISO 8655-6)		
Environmental Details :	Temperature : 25±2°C Relative Humidity : 50±10 % RH		
MECHANICAL CALIBRATION			
(Volume)			
Calibration Results			
1. Nominal Volume :	100 µl	No. of Measurements :	10
<input type="text" value="100.34"/>	<input type="text" value="100.29"/>	<input type="text" value="100.24"/>	<input type="text" value="100.20"/>
<input type="text" value="100.22"/>	<input type="text" value="100.17"/>	<input type="text" value="100.22"/>	<input type="text" value="100.24"/>
<input type="text" value="100.33"/>	<input type="text" value="100.26"/>		
Mean Value :	100.25 µl		
Error Limits(±)			
Systematic Error :	0.25 µl	0.80 µl	
Systematic Error :	0.25 %	0.80 %	
Random Error :	0.06 µl	0.30 µl	
Random Error :	0.06 %	0.30 %	
Measurement Uncertainty :	± 0.14 µl		

Remarks

- The reported Expanded Uncertainty is calculated at 95.45 % C.L with coverage factor $k=2$
- The Above Results are within the maximum permissible Error

End of certificate

Calibrated by :

S. Mani
Ms. S. Manikala
(Calibration Engineer)

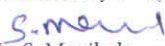


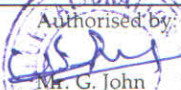
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CERTIFICATE OF CALIBRATION

FT-Q-25		Page 1 of 2	
ULR No.	CC29372000000827F	Date of Issue	21-Nov-20
Certificate No	TVCS 20/11/196 - 02	Recom. Due Date	18-May-21
Date of Calibration	19-Nov-20	SRF No.	196
Customer Details		Calibrated at	Lab
M/s. ARULJOTHI X-RAY & LAB		Date of Receipt	19-Nov-20
No. 26, Pookadai Street,		Cond. On Receipt	Satisfactory
Rasipuram - 637407			
Details of Test Instrument:			
Description	Micropipette	Model No.	--
Range	10-100 µl	Serial No	200288377
Least Count	1 µl	Identification No.	--
Make	Handypette	Accuracy	As per Manual
Working range	--	Location	Lab
Details of Standard Used			
Name	Certificate No.	Valid upto	Traceability
Electronic Semi Micro Balance	TVCSPL 20/05/364 - 01	12-May-21	TVCSPL, Chennai.
Work Instruction	WI-M-03	(Reference Standard ISO 8655-6)	
Environmental Details	Temperature : 25±2°C	Relative Humidity : 50±10 % RH	
MECHANICAL CALIBRATION			
(Volume)			
Calibration Results			
1. Lower Volume :	10 µl	No. of Measurements :	10
10.03	10.00	10.05	10.05
10.04	10.02	10.04	10.05
10.06	10.05		
Mean Value :	10.04 µl		
Error Limits(±)			
Systematic Error :	0.04 µl	0.12 µl	
Systematic Error :	0.38 %	1.20 %	
Random Error :	0.02 µl	0.08 µl	
Random Error :	0.18 %	0.80 %	
Measurement Uncertainty :	±	0.14 µl	

Calibrated by :

 Ms. S. Manikala
 (Calibration Engineer)

Authorised by:

 Mr. G. John
 (The Head)

...redefining the true value



ULR No. : CC293720000000827F
Certificate No : TVCS 20/10/196 - 02

MECHANICAL CALIBRATION				
(Volume)				
Calibration Results				
2. Middle Volume :	50	μl	No. of Measurements :	10
49.70	49.96		50.00	49.79
49.91	50.12		50.04	49.83
49.88	49.99			
Mean Value :	49.92	μl		
Error Limits(\pm)				
Systematic Error :	-0.08	μl	0.50	μl
Systematic Error :	-0.16	%	1.00	%
Random Error :	0.13	μl	0.20	μl
Random Error :	0.25	%	0.40	%
Measurement Uncertainty :		\pm	0.14 μl	
3. Nominal Volume :	100	μl	No. of Measurements :	10
100.25	100.33		100.34	100.27
100.30	100.35		100.38	100.26
100.31	100.35			
Mean Value :	100.31	μl		
Error Limits(\pm)				
Systematic Error :	0.31	μl	0.80	μl
Systematic Error :	0.31	%	0.80	%
Random Error :	0.04	μl	0.30	μl
Random Error :	0.04	%	0.30	%
Measurement Uncertainty :		\pm	0.14 μl	

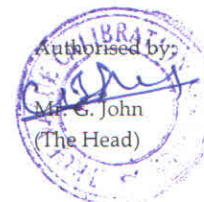
Remarks

1. The reported Expanded Uncertainty is calculated at 95.45 % C.L with coverage factor $k=2$
2. The Above Results are within the maximum permissible Error

End of certificate

Calibrated by :

S. Mani
Ms. S. Manikala
(Calibration Engineer)



...redefining the true value