



UNIQUE CALIBRATION SOLUTIONS LLP

An ISO/IEC-17025:2017 / ACCREDITED BY NABL

Tel: 0484-4858563, 0484 - 7966984, 9971328563, 9061728563, 9778197603

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CALIBRATION CERTIFICATE											
ULR NO :	CC31022200003965F					CERTIFICATE No. :	UCSL/10-22/341_05				
Customer Name & Address:					Instrument receipt Date		29.10.2022				
M/s. ICTC LAB					SRF No.		341				
CHC MEENANGADI,WAYANAD					Calibration Date		31.10.2022				
					Next calibration due (As per customer request)		31.10.2023				
					Certificate Issue date		05.11.2022				
Identification on DUC (Device Under Calibration)											
Instrument Name	MICROPIPETTE				Make	DR PETTE					
Range	10-100 µl				Model	--					
Least count	1 µl				Instrument Condition	OK					
Serial No.	--				Calibration Performed at	Mass & Volume Lab					
ID No.	MPT-01				Location	LAB					
Environmental Condition			Avg. Temperature (°C)			Avg. RH (%)		Avg. Atmospheric Pressure (hpa)			
			21.7			57		1009			
Equipment & Master Used For calibration											
Instrument Used	Calibrated By	ID No:	Certificate No		Valid Upto	Sr No.	Accreditation No				
Weighing Balance	UCSL	UCSL-WB-01	UCSL/10-22/329_01		18.10.2023	0037905909	CC-3102				
Method Used : Gravimetric method					Discipline & Category : Mechanical - Volume						
Calibration Reference Standard					Calibration Procedure						
ISO-8655-6 & ISO /TR 20461					UCSL/SOP/01-MPT						
CALIBRATION RESULTS @27°C :-											
1. Lower Volume 10 µl											
1	2	3	4	5	6	7	8	9	10	Mean Volume ∇	
10.12	10.42	10.23	10.30	10.24	10.35	10.43	10.34	10.38	10.27	10.31	
Systematic Error es µl :			-0.31		Error Limits (± 0.8 µl)		Random Error in sr µl :		0.10		
Systematic Error es in % :			-3.10		(± 8.0 %)		Random Error in Cv in % :		0.94		
2. Middle Volume 50 µl											
1	2	3	4	5	6	7	8	9	10	Mean Volume ∇	
50.47	50.70	50.63	50.54	50.41	50.68	50.60	50.53	50.69	50.52	50.57	
Systematic Error es µl :			-0.57		Error Limits (± 0.8 µl)		Random Error in sr µl :		0.10		
Systematic Error es in % :			-1.15		(± 1.6 %)		Random Error in Cv in % :		0.20		
3. Nominal Volume 100 µl											
1	2	3	4	5	6	7	8	9	10	Mean Volume ∇	
100.43	100.80	100.83	100.66	101.00	100.73	100.62	100.79	100.53	100.49	100.69	
Systematic Error es µl :			-0.69		Error Limits (± 0.8 µl)		Random Error in sr µl :		0.18		
Systematic Error es in % :			-0.69		(± 0.8 %)		Random Error in Cv in % :		0.18		
Decision Rule Is Applied or Not									Yes	No	
										✓	
Conclusion /Remarks:											
The Reported Uncertainty from 10 µl to 100 µl is 0.32 µl at , Coverage Factor K=2, which corresponds to a confidence level at approximately 95 %											
1. The calibration results reported in this certificate are valid at the time of and the stated condition of measurement.											
2. This report is valid for Scientific & Industrial Purpose Only											
3. This report should not be reproduced except in full without our prior permission in writing.											
4. Calibration certificate without signature are not valid.											
5. This Calibration Certificate relates only to the above DUC											
6. All the measurements are traceable to SI units through unbroken chain of calibration from the competent laboratories as per ISO/IEC/17025 standard requirements.											
7. DUC : Device under calibration											
Calibrated by											Issued / Approved By (APPU K MANI) Technical Director

5/D3, EK Appartments, Model engineering college road Thrikkakara, Edappally, Cochin, Kerala-682021

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CALIBRATION CERTIFICATE							
ULRNO :		CC310222000003699F		Certificate No. :		UCSL/10-22/329_01	
Customer Details:		M/s.UNIQUE CALIBRATION SOLUTIONS LLP 5/D3,MODEL ENGINEERING COLLEGE ROAD THRIKKAKARA,EDAPALLY,COCHIN KERALA-682 021		Instrument Receipt Date		--	
				Calibration Performed at		Mass&Volume Lab	
				SRF NO.		329	
				Calibration Date		18.10.2022	
				Next Calibration Due (As per customer request)		18.10.2023	
				Certificate Issue Date		24.10.2022	
Details of DUC (Device Under Calibration)							
Instrument Name		DIGITAL WEIGHING BALANCE		Range		0-60/120 g	
Serial No.		0037905909		Least Count		0.01/0.1 mg	
ID No.		UCSL-WB-01		Instrument Condition		ok	
Make/Model		SARTORIUS/QUINTIX 125 D- 10IN		Location		Mass & Volume Lab	
Accuracy Class							
Standard used for Calibration							
Sl.No	Standard used	Sr. No./ID No.	Traceability	Certificate No.	Validity	Accreditation No	
1	weights (1 mg to 200g) - E1 Class	110032-004	MARUTI	scw-0722-235	21.07.2024	CC-2813	
Environmental Condition			Temperature (°C)	23.2	Relative Humidity (%RH)	54	
Discipline & Category :		MECHANICAL- WEIGHING SCALE & BALANCE		Calibration Procedure : UCSL/SOP/01-W			
Reference Standard Doc used			OIML R 76-1 2006(E)				
CALIBRATION RESULT							
1. Weighing Performance Test:				2. Eccentricity Test:			
Sl No.	Nominal Value (g)	Conventional Mass Value (Master) (g)	Indicated Reading (DUC) (g)	Deviation (g)	Nominal Value	Location	Indicated Reading (g)
01	0.001	0.0009996	0.00101	0.00001	20g	1	20.00001
02	0.002	0.0019997	0.00201	0.00001		2	20.00001
03	0.005	0.0049998	0.00501	0.00001		3	20.00001
04	0.01	0.0099989	0.01002	0.00002		4	20.00001
05	0.02	0.0199993	0.02001	0.00001		5	20.00002
06	0.05	0.0499996	0.05000	0.00000		1	20.00001
07	0.1	0.0999990	0.10001	0.00001		5	20.00001
08	0.2	0.2000015	0.20000	0.00000		4	20.00002
09	0.5	0.5000003	0.50001	0.00001		3	20.00001
10	1	0.9999999	1.00002	0.00002		2	20.00001
11	2	1.9999975	2.00001	0.00001		1	20.00000
12	5	4.999994	4.99999	0.00000		D = 0.00001 g D=Maximum difference between Average readings of Centre and other positions	
13	10	9.999996	10.00001	0.00002			
14	20	19.999992	20.00001	0.00002			
15	50	50.000005	50.00003	0.00003			
16	60	60.000001	59.99998	-0.00002			
C _{max} =		0.00003	g		Standard deviation due to repeatability test at full load		0.00001 g
C _{max} = Maximum Correction							
Acceptance Criteria (As per manufacturer specification) :- Linearity(C _{max}) : ± 0.1 mg & Repeatability : 0.02 mg							
Uncertainty of measurement (at k=2) at approximately 95 % confidence level (±):						0.07 mg	
Decision Rule is Applied or Not				Yes		No	
Notes:-							
1. This Calibration certificate will not be legal for the purpose of the standard of "Weights & Measure (enforcement) act 1985.							
2. The Calibration results reported in this certificate are valid at the time of and the stated condition of Measurement							
3. This report should not be reproduced except in full without our prior permission in writing.							
4. This report is valid for Scientific & Industrial Purpose Only							
5. All the measurements are traceable to SI units through unbroken chain of calibration from the competent laboratories as per ISO/IEC/17025 standard requirements.							
6. This Certificate relates to the item Calibrated.							
Calibrated by							
(Calibration Engineer)						 Issued & Approved by APPU K MANI (Technical Director)	

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