



**HORIBA India Private Ltd.**

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## Certificate of Calibration

Date of Calibration: 14.02.2024

Laboratory	Microcare lab,jhunjhunu
Water temperature	25
Water conversion factor	1.0039
Lab technician	Dipendra singh

Micropipette Details:							Micropipette Details:					
Brand=Erba							Brand=DRAGUNLAB					
S.No=Of07840							S.No=YE228AX0495835					
Volume= 5-50ul							Volume=100-1000ul					
S. N	5ul		20ul		50ul		100ul		500ul		1000ul	
	Water weight gm	Calculate Water volume ml	Water weight	Calculate Water volume	Water weight	Calculate Water volume	Water weight	Calculate Water volume	Water weight	Calculate Water volume	Water weight	Calculate Water volume
1	0.00501	0.0050	0.0201	0.0201	.0502	0.05039	.1049	0.1053	.5021	0.5040	.9930	0.9965
2	0.00499	0.0050	0.0206	0.0206	.0499	0.05009	.1040	0.1044	.5002	0.5021	.9985	1.002
3	0.00521	0.0051	.01998	0.0200	.0498	0.0499	.1003	0.1006	.4902	0.4921	1.008	1.011
4	0.00513	0.00510	.01981	0.0198	.0488	0.0489	.1006	0.1009	.4910	0.4929	.9986	1.0024
5	0.00494	0.0049	.02001	0.0200	.05115	0.0512	.1002	0.1005	.5054	0.5073	1.019	1.0221
6	0.00512	0.00513	0.0209	0.0209	.05012	0.05029	.1032	0.1036	.4901	0.4920	1.072	1.0761

7	0.005 03	0.005 04	.0220	0.0220	.05015	0.0517	.09912	0.0994	.5002	0.5021	1.005	1.0089
8	0.004 98	0.004 99	.0209	0.0209	.05013	0.0515	.09987	0.1001	.5124	0.5143	.9899	0.9937
9	0.005 09	0.005 10	.01990	0.0199	.05001	0.05019	.1002	0.1005	.4999	0.5013	.9971	1.000
10	0.005 21	0.005 2	.0191	.0191	.0499	0.0500	.1001	0.10049	.5001	0.5020	1.023	1.026
Av	0.005 071	0.005 09	0.02033	0.0204	0.04993	.0501	0.1012	.10159	0.499	0.5009	1.010	1.013
Accuracy Of pipette=100x 0.00509/.005=101.8			Accuracy Of pipette=100x 100x0.0204/.020= 102%			Accuracy Of pipette=100x 0.0501/.050=100.2%		Accuracy Of pipette= 100x 0.10159/0.10= 101.59%		Accuracy Of pipette=100x 0.5009/0.50= 100.18%		Accuracy Of pipette=100x 1.013/1=101.3%

1. formula for calculated water volume  $V=w*Z$

W=weight of water, Z =conversion factor based on water density

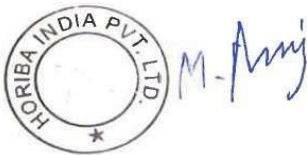
2. calculation of pipette accuracy  $A=100xV_{avg}/V_0$

A=Accuracy of pipette

$V_{avg}$ =Average water volume

$V_0$ =value of pipette set by technician

**For Horiba India Pvt Ltd,**



**Name: Abilash Vijay**

**Designation: Manager Customer Support**



