PHARMA DEVILS

MICROBIOLOGY DEPARTMENT

STANDARD OPERATING PROCEDURE	
Department: Microbiology	**SOP No.:**
Title: Operation and Calibration of Microscope	**Effective Date:**
Supersedes: Nil	**Review Date:**
Issue Date:	**Page No.:**

1.0 OBJECTIVE:

To lay down the procedure for Operation and Calibration of Micropipette.

2.0 SCOPE:

This SOP is applicable to Operation and Calibration of Micropipette in Microbiology laboratory.

3.0 RESPONSIBILITY:

Microbiologist - Quality control

Head - Quality Control.

4.0 PROCEDURE:

4.1 Operation:

4.1.1 Hold the micropipette in such a way that should rest on your index finger.

4.1.2 Put your thumb on operation button.

4.1.3 Fix the micro tip to tip cone**.**

4.1.4 Adjust the volume of solution as required by rotating the operation button.

4.1.5 Press the operation button.

4.1.6 Dip the micro tip not less than 1 cm below the surface of solution.

4.1.7 Release the operation button now to fill the required volume of liquid.

4.1.8 Hold the micropipette above the point where solution is to be discharged.

4.1.9 Again press the operation button to discharge the liquid.

4.1.10 After the use of micropipette press the ejector to remove the micro tip.

4.2 Precaution

4.2.1 Clean the outer surface of Micropipette after each use.

4.2.2 Do not press operation button very hard.

4.2.3 Handle the micropipette carefully.

4.2.4 Attach the micro tip to tip cone firmly.

4.2.5 Eject the micro tip with help of “Ejector and Pusher” only.

4.3 Calibration:

4.3.1 Ensure that the balance is calibrated before use.

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4.3.2 Put empty beaker on the balance.

4.3.3 Tare the weight.

4.3.4 Adjust the volume in the range of the micropipette within the capacity of the Micropipette and take distilled water.

4.3.5 Add water slowly to beaker, which is on the balance.

4.3.6 Note the weight of distilled water.

4.3.7 Repeat the above operation for further 3 times by tareing the Beaker.

4.3.8 Record the data in the calibration format as per Annexure-I.

4.3.9 Specific gravity of water is 0.997 g/ml at 25°C.

Calculation: Volume = Weight in g X 1000_____
Specific gravity water (0.997)

4.4 **Limit :** ± 01% of set volume

4.5 **Frequency:** Quarterly ±3 days.

4.6 **Out of calibration:**

If micropipette is out of calibration, recalibrate. If recalibration is not possible, affix "UNDER MAINTENANCE "or "DO NOT USE" label on the instrument and immediately inform service engineer.

5.0 ANNEXURE (S):

Annexure – I : Micropipette Calibration Record

6.0 REFERENCE (S):

SOP: Preparation, Approval, Distribution control, revision and Destruction of Standard Operating Procedure (SOP).

REVISION CARD

S.No.	REVISION No.	REVISION DATE	DETAILS OF REVISION	REASON (S) FOR REVISION	REFERENCE CHANGE CONTROL No.
01	00	---	---	New SOP	---

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Annexure 1

MICROPIPETTE CALIBRATION RECORD

Date of Calibration	:	Next Calibration due on	:
Limit	: ± 01 %	Frequency	: Quarterly
Specific gravity of water	: 0.997 g/ml	Balance ID No.	:

S.No.	Micropipette No.	Range	Set Volume	Permitted Volume (in µl)	Actual volume			Mean
					I	II	III	
1.		100-1000 µl	100µl	99 -101 µl				
			1000µl	990 -1010 µl				
2.		10–100 µl	10 µl	9.90 -10.10 µl				
			50 µl	49.50 - 50.50 µl				
			100 µl	99 - 101 µl				
3.		1000 µl	1000µl	990 -1010 µl				
4.		1-10 ml	1 ml	0.99 -1.01ml				
			5 ml	4.95 -5.05 ml				
			10 ml	9.90 -10.10 ml				
5.		1-10 ml	1 ml	0.99 -1.01ml				
			5 ml	4.95 -5.05 ml				
			10 ml	9.90- 10.10 ml				

Calibrated By:	**Checked By :**	**Approved By:**
(Sign & Date):	**(Sign & Date):**	**(Sign & Date):**