STANDARD OPERATING PROCEDURE	
Department: Quality Control	**SOP No.:**
Title: Operation, Calibration and Cleaning of pH meter	**Effective Date:**
Supersedes: Nil	**Review Date:**
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1.0 OBJECTIVE :

To lay down a procedure for operation & calibration of pH meter.

2.0 SCOPE :

This SOP is applicable for measuring pH of solutions in the Quality control department.

Make: Lab-India

Model: PICO+

3.0 RESPONSIBILITY :

Officer, Executive – Quality Control.

Head - Quality Control.

4.0 PROCEDURE:

4.1 Operation:

4.1.1 Ensure that the instrument is clean and free from dust.

4.1.2 Ensure the calibration status of the instrument.

4.1.3 Ensure the pH meter is perfectly grounded to electrical supply; otherwise slow response of electrode takes place.

4.1.4 Plug the RTD probe and electrode into the sockets provided.

4.1.5 Switch ON the main power supply and instrument.

4.1.6 After switching ON the pH meter, **LABINDIA PICO V2.16 pH Meter** will be displayed on the LCD.

4.1.7 Press “RESET” key and the instrument gives beep and displays **LABINDIA PICO V2.16 pH Meter** .

4.1.8 **Selecting the Required Measuring Mode :**

4.1.8.1 By Pressing “MODE” key to enter into programme mode and 1st “pH mode” will be display on LCD.

4.1.8.2 By Pressing “MODE” key 2nd time “mv mode” will be display on LCD.

4.1.8.3 By Pressing "MODE" key 3rd time "Probe check" mode will be display on LCD.

4.1.8.4 By Pressing "MODE" key 4th time "Calibration Reminder" mode will be display on LCD.

4.1.8.5 By Pressing "MODE" key 5th time" Date & Time mode"will be display on LCD.

4.1.8.6 By Pressing "MODE" key 6th time "Password mode" will be display on LCD.

4.2 pH Measurement :

4.2.1 Ensure that the pH meter is calibrated.

4.2.2 Select the pH mode of operation as described above.

4.2.3 Remove the electrode from the pH 4.01 buffer / distilled water beaker. Wash the electrode thoroughly with distilled water. Wipe the electrode with tissue paper.

4.2.4 Place the beaker with sample beneath the electrode and stir well.

4.2.5 Select the required measurement mode (*pH or mV*) by pressing "MODE" key.

4.2.6 Wait till the temperature display on LCD is stabilized

4.2.7 Press the "MODE" key once again.

4.2.8 The pH or mV of the solution is displayed on LCD. Wait till the display on LCD is stabilized.

4.2.9 Note down the reading and press "RESET" key to put the instrument in stand by mode.

4.2.10 Clean the electrode with distilled water and keep in pH 4.01 buffer / distilled water.

4.3 Calibration:

4.3.1 Transfer 60 ml of each of the standard buffer solutions viz 1.68, 4.01, 6.86, 9.18 and 12.45 in a clean tightly stoppered glass bottle. Label the buffer solution as per annexure-I.

4.3.2 Record the consumption record of buffer solutions in the format as per annexure-II.

4.3.3 Switch on the pH meter and select operation mode as described above.

4.3.4 Ensure that temperature correction before taking the reading by pressing **FWD/TEMPCO** Key. For this press the **FWD/TEMPCO** key and select suitable option ATC at: 1> 25° C 2>20°C will be display on LCD, select 25°C by pressing option 1.

4.3.5 Calibrate the instrument as follows (5 Pt. Cal.)

4.3.6 Press the mode key and pH mode will be displayed on screen.

4.3.7 Then press enter.

4.3.8 Now press "CAL" KEY "to display previous calibration "Slope and Offset" will be display on

LCD. If previously calibrated the instrument, otherwise "NO DATA" will be display on LCD.

4.3.9 Now press the "ENTER KEY", display "ENTER PASSWORD" on LCD.

4.3.10 Enter the password "1904", after entering the password "Enter Buf 1=" will be displayed on LCD.

4.3.11 Keep the standard buffer solution 1.68 and press the enter key.

4.3.12 Wait for stabilization of pH and temperature and press "Enter key". Record the value in annexure-III under pH observed Initial (Before calibration) column.

4.3.13 Now place the Buffer Solution 4.01, 6.86, 9.18 and 12.45 and follow the points 4.3.9 to 4.3.11.

4.3.14 Check Slope by pressing "CAL" key and record in Annexure-III. Slope should be more than 95.0%.

4.3.15 Verify all 5 pH buffer solutions taking the 12.45 pH buffer solution first and then the other solutions in the decreasing pH order and record in Annexure-III.

4.3.16 **Frequency:** Daily

4.3.17 If the instrument is out of calibration, put an "OUT OF CALIBRATION" tag, and proceed as per SOP.

4.4 Precautions:

4.4.1 Do not allow the electrodes to dry, it should always be dipped in pH 4.01 buffer / distilled water / storage solution for pH electrodes.

4.4.2 Do not wipe the glass electrode with any hard material or apply force. Use only tissue / filter paper for wiping.

4.4.3 Reuse buffer solutions for calibration upto 7 days.

4.4.4 Discard the buffer solution if any turbidity/ fungus is observed during use and replace with fresh solution.

4.4.5 Never use deionised water for the storage of electrode.

4.4.6 Wash the probe with water thoroughly after use. Finally wash with distilled water.

5.0 ANNEXURE (S):

Annexure - I :Specimen Label for Buffer solution

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Annexure - II : Buffer solution consumption record

Annexure - III: Calibration record of pH meter.

6.0 REFERENCE (S):

SOP: Handling of Out of Calibration

7.0 ABBREVIATION (S)/DEFINITION (S):

Nil

REVISION CARD

S.No.	REVISION No.	REVISION DATE	DETAILS OF REVISION	REASON (S) FOR REVISION	REFERENCE CHANGE CONTROL No.
1	00	---	----	New SOP	-

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ANNEXURE I
SPECIMEN LABEL FOR BUFFER SOLUTION

BUFFER SOLUTION
Name of Buffer :
Batch No. :
Expiry date :
Filled on :
Use before :
Sign :
Date :

PHARMA DEVILS

QUALITY CONTROL DEPARTMENT

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ANNEXURE II

pH BUFFER CONSUMPTION RECORD			
MAKE	**Lab India**	**INSTRUMENT ID No.:**	

Name of standard buffer solution: _____

Date	B.No./Lot No.	Volume Transferred (ml)	Balance Volume (ml)	Transferred by

PHARMA DEVILS

QUALITY CONTROL DEPARTMENT

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ANNEXURE – III

CALIBRATION RECORD OF PH METER			
Location		**Model No.**	**PICO+**
Make	**Lab India**	**Identification No.:**	
Calibration frequency	**Daily**		

DATE	CALIBRATION RECORD OF pH METER							
	pH observed SLOPE	pH observed after calibration					CALIBRATED BY	CHECKED BY
	95 to 102 %	1.68 ± 0.02	4.01 ± 0.02	6.86 ± 0.02	9.18 ± 0.02	12.45 ± 0.02		