



**Title:** Solution Preparation and Dosing in Purified Water Generation System

<b>SOP No.:</b>		<b>Revision No.:</b>	00
<b>Effective Date:</b>		<b>Supersedes No.</b>	Nil
<b>Review Date:</b>		<b>Page No.</b>	1 of 8

**1.0 OBJECTIVE:**

To lay down a procedure for Solution Preparation and Dosing in Purified Water Generation System.

**2.0 SCOPE:**

This SOP is applicable for Cleaning, Preparation and Dosing of solution in Purified Water Generation and Distribution System.

**3.0 RESPONSIBILITY:**

Officer / Executive – Engineering

**4.0 ACCOUNTABILITY:**

Head – Engineering

**5.0 ABBREVIATIONS:**

ADS	Antiscalant Dosing System
Conc.	Concentration
SMBS	Sodium Meta Bi Sulphite
Hr.	Hours
Ltd.	Limited
Ltr.	Liters
NaOCl	Sodium Hypo Chlorite
NaOH	Sodium Hydroxide (Caustic Soda)
pH	Potential of Hydrogen
ppm	Parts per Million
Qty.	Quantity
PPE	Personnel Protective Equipment

**6.0 PROCEDURE:**

- 6.1** Ensure that the system is in OFF condition / Standby mode.
- 6.2** Drain the left over solution by drain point.
- 6.3** Clean the dosing tank (SMBS, NaOH, ADS) properly with purified water & NaOCl dosing tank with raw water and visually check the tank for its cleanness.
- 6.4** Dosing tank shall clean daily prior to preparation of solution and record the cleaning details in **Annexure IV.**
- 6.5** While cleaning the tank ensure that the level sensor shall not get disturbed and does not cause to trip the system.
- 6.6** Four Chemicals are used for dosing in Purified Water Generation System which serves the different purpose these are as NaOCl, SMBS, ADS & NaOH.



# PHARMA DEVILS

ENGINEERING DEPARTMENT

**Title:** Solution Preparation and Dosing in Purified Water Generation System

<b>SOP No.:</b>		<b>Revision No.:</b>	00
<b>Effective Date:</b>		<b>Supersedes No.</b>	Nil
<b>Review Date:</b>		<b>Page No.</b>	2 of 8

**6.7** Prepare the Solution using the given below formula:

$$\frac{\text{Water Quantity X Concentration of the Solution used}}{\% \text{ assay of the solution}} = \text{--- Kg or Ltr.}$$

Qty. of Purified / Raw water and concentration of chemical solution for Purified Water System is as per the following table:

S.No.	Chemical Name	Water Quantity	Concentration of the Chemical taken	
			3 KL	5 KL
1.	NaOCl (Sodium Hypo Chlorite)-1 phase	50 ltrs	1.00 %	
2.	NaOCl (Sodium Hypo Chlorite) -2 phase	20 ltrs	2.00%	2.00%
3.	SMBS (Sodium Meta Bi-Sulphite)	20 ltrs	2.00%	2.00%
4.	ADS (Sodium Hexa Meta Phosphate)	20 ltrs	2.00%	4.00%
5.	NaOH (Sodium Hydroxide)	20 ltrs	4.00%	8.00%

% assay of the solution is based on QC report as per **and as per Annexure -I** of SOP.

**6.8** Calculated quantity of dosing chemical shall be taken and pour in respective dosing tank. Add purified water/ raw water as per above mentioned table and mix it well.

**6.9** Operator/ Officer / Executive Engineering shall affix the duly filled and signed status label on the dosing tank as per **Annexure-II**.

**6.10** Use the prepared solution in same days of preparation & if in any case prepared solution quantity is consumed fully then prepared the solution again and same shall be mentioned in prescribed **Annexure I**.

**6.11** Officer / Executive Engineering shall calculate the dosing rate using the given below formula:

$$\frac{\text{Flow rate of Water in } \left(\frac{\text{ltr}}{\text{hr}}\right) \times \text{required ppm} \times 100}{1000 \times \text{concentration of Solution taken} \times 60} = \text{--- ml/min. dosing}$$





# PHARMA DEVILS

ENGINEERING DEPARTMENT

**Title:** Solution Preparation and Dosing in Purified Water Generation System

<b>SOP No.:</b>		<b>Revision No.:</b>	00
<b>Effective Date:</b>		<b>Supersedes No.</b>	Nil
<b>Review Date:</b>		<b>Page No.</b>	4 of 8

**9.0 REFERENCES:**  
MANUAL

**10.0 REVISION HISTORY:**

### CHANGE HISTORY LOG

Revision No.	Change Control No.	Details of Changes	Reason for Change	Effective Date	Updated By





**Title:** Solution Preparation and Dosing in Purified Water Generation System

<b>SOP No.:</b>		<b>Revision No.:</b>	00
<b>Effective Date:</b>		<b>Supersedes No.</b>	Nil
<b>Review Date:</b>		<b>Page No.</b>	6 of 8

## ANNEXURE-III

**STATUS BOARD**

\_\_\_\_\_ **DOSING**

<b>TANK ID.:</b>	<b>DATE:</b>
% OF SOLUTION	
DOSING RATE	
STROKE RATE	
FREQUENCY OF SOLUTION PREPARATION	
DATE OF TANK CLEANING	
NEXT DUE DATE OF TANK CLEANING	
PREPARED BY (SIGN. & DATE)	
REVIEWED BY (SIGN. & DATE)	



