PROTOCOL FOR NEUTRALIZATION

OF

PENICILLIN (PIPERACILLIN & TAZOBACTAM)

&

CEPHALOSPORIN (CEFTRIAXONE)

DATE OF VALIDATION	
SUPERSEDED PROTOCOL NO.	NIL

PROTOCOL FOR NEUTRALIZATION OF PENICILLIN & CEPHALOSPORIN WITH SODIUM HYDROXIDE

PROTOCOL CONTENTS

PROTOCOL FOR NEUTRALIZATION OF PENICILLIN & CEPHALOSPORIN WITH SODIUM HYDROXIDE

1. PROTOCOL APPROVAL:

INITIATED BY:

DESIGNATION	NAME	SIGNATURE	DATE
MANAGER (QUALITY ASSURANCE)			

REVIEWED BY:

DESIGNATION	NAME	SIGNATURE	DATE
HEAD (PRODUCTION)			
HEAD (ENGINEERING)			
HEAD (QUALITY CONTROL)			

APPROVED BY:

DESIGNATION	NAME	SIGNATURE	DATE
HEAD (QUALITY ASSURANCE)			

PROTOCOL FOR NEUTRALIZATION OF PENICILLIN & CEPHALOSPORIN WITH SODIUM HYDROXIDE

2. OBJECTIVE:

To provide documentary evidence and prove that concentration of NaOH Solution required to neutralizing Penicillin (Piperacillin & Tazobactam) and Cephalosporin (Ceftriaxone) contamination.

3. SCOPE:

The validation protocol is applicable to determine the concentration of NaOH Solution required to neutralizing Penicillin (Piperacillin & Tazobactam) and Cephalosporin (Ceftriaxone) contamination.

4. RESPONSIBILITY:

The Validation Group, Comprising of a representative from each of the following departments shall be responsible for the overall compliance of this Protocol:

DEPARTMENTS	RESPONSIBILITIES
Quality Assurance	• Preparation, Review, Pre Approval, Compilation and Post Approval of Neutralization Study Protocol and Report. • Monitoring of Neutralization Study. • Verification of Tests & Results. • Review the executed protocol to check the compliance and corrective action for discrepancies found. Also shall prepare the summary and conclusion of neutralization study.
Production	• Review & Pre Approval of Protocol and Report. • To Co-ordinate and support for execution of Neutralization Study as per protocol. Post Approval of Neutralization Study Report after Execution
Engineering	• Review & Pre Approval of Protocol and Report. • Co-ordination, Execution and technical support during Neutralization Study. • Responsible for Trouble shooting (if occurs during execution). • Post Approval of Neutralization Study after Execution.
Quality Control	• Review & Pre Approval of Protocol and Report. • Analytical Support (Testing / Analysis) • Post Approval of Neutralization Study after Execution

5. TRAINING OF EXECUTION TEAM:

Provide the training to a team for execution of Protocol before execution of the same Training detail shall be recorded in the Format as shown in Exhibit-I.

6. METHODOLOGY:

Various concentration of Sodium Hydroxide (NaOH) used to demonstrate neutralizing Betalactam Ring of Penicillin (Piperacillin & Tazobactam) and Cephalosporin (Ceftriaxone) and that can be use for decontamination validation.

Thus various concentration of NaOH to neutralization is vary and selected the Sodium Hydroxide concentration which is used for decontamination.

7. PROCEDURE FOR NEUTRALIZATION OF PENICILLIN (PIPERACILLIN TAZOBACTAM) & CEPHALOSPORIN (CEFTRIAXONE) WITH SODIUM HYDROXIDE:

7.1 Neutralization of Penicillin (Piperacillin Tazobactam) with Sodium Hydroxide (NaOH):

Prepare the percentage concentration of Sodium Hydroxide in various percentage concentrations 1%, 2%, 3%, 4%, 5% and 10%, and adjust the pH up to 13.

- **Test for 1% concentration of NaOH**: Pore the 2 ml of prepared 1% NaOH concentration in 1g of Piperacillin Tazobactam and monitor the reaction.
- **Test for 2% concentration of NaOH:** Pore the 2 ml of prepared 2% NaOH concentration in 1g of Piperacillin Tazobactam and monitor the reaction.
- **Test for 3% concentration of NaOH:** Pore the 2 ml of prepared 3% NaOH concentration in 1g. (wt/volume) of Piperacillin Tazobactam and monitor the reaction.
- **Test for 4% concentration of NaOH:** Pore the 2 ml of prepared 4% NaOH concentration in 1g. (wt/volume) of Piperacillin Tazobactam and monitor the reaction.
- **Test for 5% concentration of NaOH:** Pore the 2 ml of prepared 5% NaOH concentration in 1g. (wt/volume) of Piperacillin Tazobactam and monitor the reaction.
- **Test for 10% concentration of NaOH:** Pore the 2 ml of prepared 10% NaOH concentration in 1g of Piperacillin Tazobactam and monitor the reaction.

Record the different concentration of NaOH used as observation in Exhibit-II.

7.2 Neutralization of Cephalosporin (Ceftriaxone) with Sodium Hydroxide (NaOH):

Prepare the percentage concentration of Sodium Hydroxide in various percentage concentrations 1%, 2%, 3%, 4%, 5% and 10%, and adjust the pH up to 13.

- **Test for 1% concentration of NaOH**: Pore the 2 ml of prepared 1% NaOH concentration in 1g of Ceftriaxone and monitor the reaction.
- **Test for 2% concentration of NaOH:** Pore the 2 ml of prepared 2% NaOH concentration in 1g of Ceftriaxone and monitor the reaction.
- **Test for 3% concentration of NaOH:** Pore the 2 ml of prepared 3% NaOH concentration in 1g of Ceftriaxone and monitor the reaction.
- **Test for 4% concentration of NaOH:** Pore the 2 ml of prepared 4% NaOH concentration in 1g of Ceftriaxone and monitor the reaction.
- **Test for 5% concentration of NaOH:** Pore the 2 ml of prepared 5% NaOH concentration in 1g of Ceftriaxone and monitor the reaction.
- **Test for 10% concentration of NaOH:** Pore the 2 ml of prepared 10% NaOH concentration in 1g of Ceftriaxone and monitor the reaction.

All monitored reaction shall be documented in Format as shown in Exhibit-II.

8. RESULTS:

Record the observation in respective Exhibit.

9. ACCEPTANCE CRITERIA:

After Neutralization with NaOH, Raw Material/Product of Penicillin (Piperacillin Tazobactam) & Cephalosporin (Ceftriaxone) should be completely dissolved to get Clear Solution.

10. DEVIATIONS:

Deviation, Non conformance and out of specification results obtained shall be investigated in accordance with corresponding SOP's and documented in the validation report.

11. CHANGE CONTROL (IF ANY):

Any changes from specified parameter occurred during the Neutralization study shall be go through change control as per the specified SOP's documented in the validation report

12. CONCLUSION:

Validation data shall be written on validation report, clearly stating the achievement or Non Compliance of the acceptance criteria, effect of the deviation made during the validation and in case of failure, Investigation carried out their findings.

13. RECOMMENDATION:

On the basis of study and conclusion, recommendation shall be made to use the method for Neutralization/Hydrolyses of Penicillin & Cephalosporin contents.

14. ABBREVIATIONS:

Ltd.	:	Limited
ID	:	Identification
SOP	:	Standard Operating Procedure
QC	:	Quality Control
%	:	Percentage

15. EXHIBITS:

EXHIBIT-I

TRAINING DETAILS

S. No.	Name of Trainee	Department	Designation	Acceptance Criteria	Signature of Trainee	Checked By (Sign & Date) (QA)
1.				All personnel involved in execution of protocol shall be trained in the required procedure and shall be documented		
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						

Name of Trainer:_____

Inference:_____

_____

_____

Reviewed By (Sign & Date)_____
(Manager-QA)

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EXHIBIT-II

STUDY OF PERCENTAGE CONCENTRATION OF SODIUM HYDROXIDE

S.No.	Raw Material		Concentration of Neutralizing Agent (NaOH) in 2 ml	Observation
	Name	Quantity		
1.	Piperacillin Tazobactam	1g	1%	
2.			2%	
3.			3%	
4.			4%	
5.			5%	
6.			10%	
7.	Ceftriaxone	1g	1%	
8.			2%	
9.			3%	
10.			4%	
11.			5%	
12.			10%	

Acceptance Criteria: After Neutralization with NaOH, Raw Material/Product of Penicillin (Piperacillin Tazobactam) & Cephalosporin (Ceftriaxone) should be completely dissolved to get Clear Solution.

Complied By:_____
(QA)
Sign & Date:

Inference:_____
_____

Reviewed By (Sign & Date)_____
(Manager-QA)