DIRTY EQUIPMENT HOLD TIME STUDY PROTOCOL CUM REPORT FOR ORAL LIQUID

HOLD TIME STUDY PROTOCOL

FOR

DIRTY EQUIPMENTS

Protocol No.	
Supersedes	**Nil**
Protocol Effective Date	
Report Effective Date	

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1.0 PRE-APPROVAL:

PREPARED BY :				
DEPARTMENT	**NAME**	**DESIGNATION**	**SIGNATURE**	**DATE**
QUALITY ASSURANCE				

CHECKED BY :				
DEPARTMENT	**NAME**	**DESIGNATION**	**SIGNATURE**	**DATE**
MICROBIOLOGIST				
QUALITY CONTROL				
PRODUCTION				

APPROVED BY:				
DEPARTMENT	**NAME**	**DESIGNATION**	**SIGNATURE**	**DATE**
QUALITY ASSURANCE				

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2.0 OBJECTIVE:

The objective of this protocol is to lay down a procedure for carrying unclean equipment Hold time study and to establish the stabilization period for hold time for Dirty equipment or vessel of Oral Liquid manufacturing facility.

3.0 SCOPE:

This Protocol is applicable in cleaning validation for Dirty Equipment used in Oral Liquid manufacturing facility. The Samples of Dirty Equipment subjected to Hold Time Study shall be stored under simulated conditions and shall be analyzed as per the established specifications at different time points of study as specified.

Microbiological methods for testing of Dirty Equipments have been satisfactorily adopted into the Microbiology laboratory.

4.0 RESPONSIBILITY:

Departments	Responsibilities
Quality Assurance	• Monitoring of protocol completeness, accuracy, technical excellence and applicability. • Preparation of Protocol. • Review of Protocol. • Approval of Protocol. • To review analytical reports & Compilation.
Production	• To review the Protocol & report. • Cleaning of equipment & control on equipment during hold time study • To provide details of equipments.
Quality Control	• To review the Protocol & Report. • Microbial sampling • Analyzing the samples withdrawn during the execution of the protocol • Preparation of raw data of analysis. • Submission of data to QA and review of final report.

5.0 SELECTION OF DIRTY EQUIPMENT FOR HOLD TIME STUDY

The following Dirty Equipments matrix is described in **Table No. 1.**

S.No.	EQUIPMENTS NAME	EQUIPMENTS ID
01	Manufacturing Tank	
02	Electric Kettle	
03	Filter Press	
04	Sieves	
05	Liquid Transfer Pump	
06	Colloidal Mill	
07	S.S Container	

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6.0 EXPERIMENTAL PLAN:

6.1 Hold Time for Dirty Equipment:

S.No.	Hold Time Interval	Experimental Study	Test to be performed	Acceptance Criteria
01	0 Hrs.	To set a time frame in which the dirty equipments can be reuse for process safely.	Microbial	To monitor & Establish Limit for Microbial Counts.
02	12 Hrs.		Microbial	
03	24 Hrs.		Microbial	
04	48 Hrs.		Microbial	
05	72 Hrs.		Microbial	
06	96 Hrs.		Microbial	

7.0 SAMPLING PROCEDURE:

- Use the sterile Swab Sticks, mask, gloves and marker for the collection of sample from Dirty Equipments**.**
- Sample shall be collected aseptically.
- During sampling should wear gloves and mask.
- Take the microbial sample from the Dirty Equipment by using the sterilized Swab Sticks.
- Take the micro sample from a swab area of 5 X 5 Inch
- After completion of sampling immidiatelly place the swab stick into the solvent and close the test tube properly. Write the Name of the sample, Equipment ID No., sampled by and date of sampling on the suitable label.
- Sample shall be collected individually on the time interval as defined in above experimental plan.
- Each and Every time the sample collected on the different time intervals should be from different location.

7.1 Swab sampling Location:

Sampling shall be carried out as per current version of SOP. Microbial sampling location shall be different from each other. The locations from where, swab sample is to be taken is identified are in **Annexure-I.**

8.0 MICROBIOLOGICAL ANALYSIS TESTING PROCEDURE:

Method	Pour Plate Analysis Method
Solvent	Purified Water
Media	Sterile Soybean Casein Digest Agar (SCDA), Sterile Sabouraud Dextrose Agar (SDA)
Glass Wares	Petri dishes, Sterile Tip (1.0 ml), Sterile 1 ml Micro Pipette, Sterilized Tip Box and Sterilized Gloves.

8.1 Method:

- Prepare the required quantity of Soyabean Casein Digest Agar and Sabouraud Dextrose Agar as per respective SOP.
- Analyzes the media for Growth Promotion Test as per respective SOP.
- Arrange all the materials like sample, Media, Petriplates, Tip Box etc in the Microbial Limit Test Room.
- Take 1 ml of sample from test tube and pour into petri plate for Bacterial count and for fungal count separately, pour media in this petri plates and incubate the plates at defined temperature for microbes and for fungus.
- Take 10 ml of sample solution from above test tube and pour into a test tube, than add 90 ml of pathogen medium in

the test tube and incubate the test tube at defined conditions according to SOP.

- ❖ After completion of incubation period, observe the plates for Bacterial, Fungal and Pathogen count and record the results in **Annexure II**.

9.0 ACCEPTANCE CRITERIA:

S.No.	Tests	Limits
01	**Microbial Limit test**	
	A. Total viable aerobic count	
	Aerobic bacteria	NMT 10^2 cfu/ml
	Fungi	NMT 10^1 cfu/ml
	B. Pathogens	
	1. *E. coli*	Absent
	2. *Salmonellae*	Absent
	3. *Staphylococcus aureus*	Absent
	4. *Pseudomonas aeruginosa*	Absent

10.0 DEVIATION AND CHANGE CONTROL:

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11.0 DATA RECORDING:

Annexure I: Sampling Plan for Dirty Equipment

Annexure II: Data Recording for Microbes, Fungus and Pathogen Count.

12.0 SUMMARY AND CONCLUSION:

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13.0 REPORT APPROVAL:

COMPLIED BY :

DEPARTMENT	NAME	DESIGNATION	SIGNATURE	DATE
QUALITY ASSURANCE				

REVIEWED & CHECKED BY :

DEPARTMENT	NAME	DESIGNATION	SIGNATURE	DATE
QUALITY ASSURANCE				
QUALITY CONTROL				
PRODUCTION				

APPROVED BY:

DEPARTMENT	NAME	DESIGNATION	SIGNATURE	DATE
QUALITY ASSURANCE				

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14.0 ABBREVIATION:

QA	:	Quality Assurance
cfu	:	Colony Forming unit.
hrs	:	Hours
ml	:	Milliliter
SOP	:	Standard Operating Procedure
SS	:	Stainless Steel
QC	:	Quality Control
DHT	:	Dirty Hold Time
SDA	:	Sabouraud Dextrose Agar
SCDA	:	Soyabean Casein Digest Agar
NMT	:	Not More Than

15.0 REVISION HISTORY:

S.No.	Effective Date	Revision No.	Reason for Revision
1.		00	New

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ANNEXURE I

Sampling Plan for Dirty Equipments (Liquid)

Microbial Swab Sampling				
S. No.	**Name of the Equipment**	**Location**	**Sample Name**	**No. of Swab Location**
1.	Manufacturing Tank	Impeller Blades	S1	3
		Tank Inner surface	S2	
		Out let valve	S3	
2.	Electric Kettle	Inner wall	G1	2
		Bottom wall	G2	
3.	Filter press	Inner wall	P1	2
		Bottom Valve	P2	
4.	Sieves	Upper Surface	F1	2
		Lower Surface	F2	
5.	Liquid Transfer Pump	Inlet valve	C1	2
		Out let valve	C2	
6.	Colloidal Mill	Hopper Inner wall	V1	2
		Outlet valve	V2	
7.	S.S Container	Inner Surface wall	T1	2
		Bottom inner surface	T2	

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ANNEXURE II

Data Recording for Microbes, Fungus and Pathogen count for Dirty Equipments (Liquid)

Product Name ……. Batch No. ……

Equipment Name…… Equipment ID No. …….

S. No.	Tests	Limits	0 hours	12 hours	24 hours	48 hours	72 hours	96 hours
01		Microbial limit test						
		A. Total viable aerobic count						
	Aerobic bacteria	NMT 10^2 cfu/ml						
	Fungi	NMT 10^1 cfu/ml						
		B. Pathogens						
	1. *E. coli*	Absent						
	2. *Salmonellae*	Absent						
	3. *Staphylococcus aureus*	Absent						
	4. *Pseudomonas aeruginosa*	Absent						