

QUALITY RISK ASSESSEMENT AND MITIGATION PLAN

Uni		edia Fill Activity	stem/Activity/Procedu					Date	e Of	Quality Ris	sk Assessment	t :			
5. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	0	D	Risk Priority Number (S*O*D)	Recommend- ended Actions (if any)	S	Post F	Risk D	R N S*
isp	ensing									()	(1 411)				
	Dispensing stage	 Fail to dispense the required quantity. Dispense material get contaminate 	 Inadequate result due to improper quantity dispensing. Contamination of the area leading to contamination of material. 	wrong capacity of weighing balance.	 balance shall be done on the basis of weighing balance capacity and dispense quantity of material. SOP for weighing Balance calibration shall be in place. Environmental condition shall be monitored before and after start of activity in respective BMR. Uses and cleaning of dispensing tool SOP is in place. Dispensing of RM,PPM and API SOPs are in place. Training has been imparts to all concerned personnel's. 	Operation, Cleaning, Calibration and Verification of Weighing Balances	4			4 Low category & Risk Accepted	Adequate procedure no recommenda tion required	NA	NA	NA	1



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Unit Operation: Media Fill Activity

	Item/	Potential	Potential Effect of							Risk	Recommend-		Post R	isk	
S. No.	Function	Failure Mode (Failure Mode)	Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	0	D	Priority Number (S*O*D)	ended Actions (if any)	S	0	D	RP N *O
2.	Component preparation	Improper component preparation and sterilization procedure.	 Improper cleaning and sterilization of component leads to microbial growth. Due to microbial growth leads to media failure. 	 Unqualified equipment use for sterilization. Inadequate component cleaning procedure and sterilization procedure. Lack of steam or utility cut off during sterilization phase. Articles cleaning and sterilization by untrained person. Load pattern may not follow. Selection of wrong recipe. Sensor malfunctioning Due sterilized material hold time cross. 	 Qualification of Autoclave i has been completed. Component cleaning and sterilization SOP is in place. If the steam lack occurs during sterilization phase, alarm will generate and same shall be acknowledged by operator and cycle will be considered as abort. Training has been imparted to all concerned persons. Validated load patterns should be refers before start of activity as per respective SOP. Validated recipe and parameter has been incorporated in SOP. Defined frequency in place for schedule calibration, Preventive maintenance and validation status. 	Cleaning and Sanitation of Aseptic/Manufacturing/Washing and Sterilization/Vial Sealing Area	4	2	1	8 Low category & Risk Accepted		NA	NA	111	NA



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3.	Manufacturing Process	Sterilization not done of manufacturing tank.	Chemical & Microbial contamination increases in manufacturing vessel.	sanitization not followed.	 Written procedures are available for cleaning & sanitization processes and quality assurance person verify the sterilization process of manufacturing tank. Online SIP (Sterilization in Place) system is available for sterilization. 	SOP	4	1	1	4 Low category & Risk Accepted	Adequate procedure no recommenda tion required.	NA	NA	NA	N A
		 WFI failed during testing. 	Batch Directly Impacted, Chance to increases microbial level in final product.	predetermined specification.	Before manufacturing WFI sample shall be send for pH, Conductivity & BET test & Procedure Incorporated in BMR.	SOP	4	3	1	12 Low category & Risk Accepted	Adequate procedure no recommenda tion required.	NA	NA	NA	N A
		Weight verification not done after dispensing process.	Could not verify if there is a loss of dispensed raw material during transfer from dispensing room to manufacturing room.	Due to no provision of verification in manufacturing room.	All dispensed materials are kept in separate dispensing poly bags and closed with cable tie and after dispensing all dispensed materials are kept in a SS container with lock n key.	SOP	3	3	1	9 Low category & Risk Accepted	Adequate procedure no recommenda tion required.	NA	NA	NA	N A



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	Manufacturing Process.	Failure in temperature indicator controller & Temperature sensor of manufacturing tank during batch mixing.	Due to that the actual process of manufacturing with respect to actual temperature of WFI will not be accurately matched and it can be affected the batch manufacturing process.	 Sensitivity of temperature indicator controller & Temperature sensors may failed 	Calibration and performance of temperature indicator controller & temp. Sensors shall be check during operational qualification of mfg. tank.	SOP	3	3	1	9 Low category & Risk Accepted	Adequate procedure no recommenda tion required.	NA	NA	I I	N A
		Mixing time & Volume Variation during manufacturing of bulk.	Variation in desired assay result.	Due to invisible marking on dipstick and/or untrained operator perform batch manufacturing.	 Batch manufacturing process is done in presence of QA and Production supervision to ensure correctness of all parameters according to BMR. Periodic calibration of dipstick is done to ensure exact marking. 	SOP	3	3	1	9 Low category & Risk Accepted	Adequate procedure no recommenda tion required.	NA	NA	NA	N A



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S. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	0	D	Risk Priority Number (S*O*D)	Recommend- ended Actions (if any)	S	Post R	D	RP N S*O
		Heating or cooling the solution	Increase of impurities and can be a chance dissolution difficulties.	There can be a mechanical problem (in heater or chiller)	 Temperature limits for applicable steps are written in the batch manufacturing records and are double check by production and quality assurance person. Preventive maintenance is done as per schedule. 	SOP	3	2	1	6 Low category & Risk Accepted	Adequate procedure no recommenda tion required.	NA	NA	NA	N A



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S. No.	Function	Failure Mode (Failure Mode)	Fotential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	0	D	Priority Number (S*O*D)	ended Actions (if any)	s	0	D	RP N S*O
	Manufacturing Process.	Improper manufacturing of Media	 Due to improper manufacturing procedure bioburden may increase more than specification. Failure during compounding may lead to loss of time and resources. Unexpected outcome like yield and concentration of media may lead to media failure. 	 procedure not available. Due to lack of calibration ,preventi ve maintenance, operational and cleaning procedures. Due to lack of qualification procedure. Unsterlized and unclean equipment may use. 	 system is completed. In line clearance of compounding activity ensure the sterilization vessels shall be mention in BMR. Vessels CIP, SIP procedure are qualified and SOP is in place. 	Load Cell Verification and Calibration of Manufacturing Vessels	4	1	1	4 Low category & Risk Accepted	Adequate procedure no recommenda tion required.	NA	NA	NA	NA



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S. No.	Function	Failure Mode (Failure Mode)	Failure (Effect)	Potential Cause/ Mechanism of Failure		Reference	S	0	D	Priority Number (S*O*D)	ended Actions (if any)	S	0	D	RP N S*O
	Mixing tank to Holding tank Transfer line.	Cleaning not done of mixing tank to holding tank transfer line.	 Microbial contamination increases in transfer line. There might be a chance of contamination of product. 	 > Online monitoring for cleaning of product line not available > Cleaning process of transfer line interrupted. > Cleaning of transfer line not followed as per SOP. > No proper procedure for cleaning of transfer line. 	 Product line cleaned with manufacturing tank and online conductivity sensor has been installed at the end of Drain line and recipe has been set when conductivity not achieve then cleaning continue still get conductivity 1.3 μ siemen. Print facility available for reviewing of cleaning Process 	SOP	4	3	1	12 Low category & Risk Accepted	Adequate procedure no recommenda tion required.	NA	NA	NA	N A
		Sterilization not done of mixing tank to holding tank transfer line.	 Directly impacted to Product Sterility & Quality. Product gets contaminated after filtration. 	Due to assembling of Product line after sterilization, intact line and online sterilization facility not available.	<u> </u>	SOP	4	2	1	8 Low category & Risk Accepted	Adequate procedure no recommenda tion required.	NA	NA	NA	N A



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10.	During Filter Integrity testing	Improper filter integrity procedure	 Inadequate result of filter integrity may directly impact on sterility of product. Due to improper filter integrity media failure. 	qualify.	 integrity machine has been completed. > Operational SOP is in place > Training has been imparted to all concerned persons. > Validated recipe and parameter has been incorporated in SOP. 	Operation of Integrity Tester	3	1	1	3 Low category & Risk Accepted	Adequate procedure no recommendati on required.	NA	NA	NA	NA



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S. No.	Function	Failure Mode (Failure Mode)	Fotential Effect of (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	0	D	Priority Number (S*O*D)	ended Actions (if any)	s	0	D	RP N S*O
11.	Bulk hold	Fails to Bulk hold	solution hold period bioburden may increase more than the	 aseptic connection. Due to lack of positive pressure. Due to failure of filter integrity of vent filters. Due to lack of provision to monitor the 	 system has been completed. The vessel is close system and operated through control HMI. The vessel kept under 	ell Verification and Calibration of Manufactur	4	1	1	4	Adequate procedure no recommendati on required	NA	NA	NA	N A

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12.	Filtration activity	Improper filtration	 Filtered is not sterile leads to microbial growth. Improper filtration leads to media fill failure. 	 Due to lack of procedure to sterilize the filter. Due to lack of procedure to check the integrity of filter. Due to improper training to concerned persons. Due to lack of filteration procedures. Due to lack of filter validation. Due to insufficient utility supply. 	 online SIP of filtered. Filter integrity procedure is available. Training procedure is in place. 	SIP for Mixing Vessel/ MMV/ Holding Vessel/Buffer Vessel	4	2	2	16	Filter validation shall be established.	4	1	4



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13.	Vial washing	Improper washing of vial	 Improper vial washing procedure leads to contamination Due improper cleaning particulate matter may presence in vials and leads to media fill failure. 	 equipment. Lack of operational procedure. Due to activity handled by untrained person. Due to lack of 	 completed for vial washing machine. > Operational SOP is in place. > Training has been imparted to concerned persons. > Cleaning, operational and preventive maintenance procedures is in place. 	Operation and Cleaning Vertical Rotary of Washing Machine	4	1	1	4	Adequate procedure no recommendati on required	NA	NA	NA NA



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S. No.	Function	Failure Mode (Failure Mode)	Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	0	D	Priority Number (S*O*D)	ended Actions (if any)	S	0	D 1	RP N *O
14.	Tunnel operation	Improper depyrogenatio n to vial.	 Improper depyrogenation leads BET failure. Failure in tunnel leads to loss of time and resources. 	 Unqualified equipment may use. Lack of operational procedure. Untrained person may operate machine Inadequate cleaning procedure. Tunnel temperature and DP fluctuation during batch activity Selection of wrong parameters and recipe. 	 place. Training has been imparted to concerned persons. Cleaning SOP is in place. 	Operation of Cleaning of Sterilizing & Depyrogenation Tunnel	4	2		8	Adequate procedure no recommendati on required	NA	NA	NA	N A



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S. No.	Function	Failure Mode (Failure Mode)	Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	0	D	Priority Number (S*O*D)	ended Actions (if any)	S	0	D	RP N S*O
15.	Filling operation	➤ Improper filling and stoppering	 Improper filling may result in volume variation. Lack of aseptic behavioural during filling and stoppering activity may leads to contamination and media fill failure. 	 qualification procedure. ≻ Lack of cleaning and operational procedure. > Unsterile parts or article may use I filling operation. 	 and stoppering machine has been completed. SOP for filling machine cleaning and operation is in place. Sterilization procedure for machine parts loads is in place. Filling shall be carried out under class A condition(Unidirectiona l air flow area) Aseptic intervention shall be performed as per media fill protocol and BMR. Operational training has been done for all concerned persons for aseptic. Aseptic interventions 	Operation and Cleaning of Automatic High Speed Injectable Powder Filling and Stoppering Machine	4	2	1	8	Adequate procedure no recommendati on required	NA	NA	N A	N A

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S. No.	Function	Failure Mode (Failure Mode)	Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	0	D	Priority Number (S*O*D)	ended Actions (if any)	S	0	D S	RP N S*O
16.	Capping operation	Improper capping operation	 Chance of contamination during capping activity due to crimping is not provide leak proof sealing to the vials. Failure in capping activity leads to loss of time and resources. 	 Unqualified equipment may use. Operational and cleaning procedure may not available. Untrained person may operate machine. Lack of leak test procedure for sealed container. 	 cleaning SOP is in place. Training has imparted to concerned persons. 	Operation & Cleaning of Filling, Dropper Fixing & Screw Capping ממריחים	3	2	1	6	Adequate procedure no recommendati on required	NA	NA		N A
17.	Incubation process	Improper incubation	 > Improper incubation may leads to false result. > Failure during incubation process of media fills vials leads to loss of time and resources. 	 Incubators may not qualify. Due to power failure. Due to data back up not available. Lack of calibration, preventive maintenance and validation procedure. 	 Qualification for incubators has been completed. UPS supply is available. Software is available for data back-up Calibration, preventive maintenance and validation procedure is in place. 	Operation, Calibration &Maintenance of BOD Incubators & Rartariological Incubatore	4	2	1	8	Adequate procedure no recommendati on required	NA	NA	NA	JA



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18.	Cleaning agent and Disinfectant	Improper disinfectant preparation, area cleaning and sanitization process.	 Leads to area and product contamination. Failure in area cleaning and disinfectant preparation activity leads to loss of time and resources. 	 Disinfectant not qualified SOP not available for disinfectant preparation. Lack of area cleaning and disinfectant preparation procedure. Area cleaning and disinfectant preparation done by untrained person. 	disinfectant preparation.	Preparation, Filtration, Usage and Destruction of Disinfectant Solution	4	2	2	16	Adequate procedure no recommendati on required	NA	NA	NA	A



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S. No.	Function	Failure Mode (Failure Mode)	Follure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	0	D	Priority Number (S*O*D)	ended Actions (if any)	S	0	D	RP N S*O
19.	Entry Exit and personal monitoring	Failure in following personnel gowning and entry exit area process for critical area.	 Improper gowning procedure may leads to contamination in area and product. Failure in area cleaning and disinfectant preparation activity leads to loss of time and resources. 	 Unavailability of gowning procedure and gowning qualification program. Lack of garment sterilization procedure. Unavailability of dedicated storage area. Garment hold period may cross. Lack of controls restricted entry in critical area. Persons not maintaining personnel hygiene. 	 procedure and gowning qualification are in place. Garments shall be sterilized as per validated load pattern. Garments should be store under class A condition(LAF cabinet) Personnel restricted entry controlled by biometric assess system. 	Personnel Monitoring by Contact Plate and Finger Dab	4	2	1	8	Adequate procedure no recommendati on required	NA	NA	NA	NA

Where: S=Severity; O=Occurrence Probability; D=Detection; Risk category 1-25 RPN is Low risk, 26-50 RPN is Medium Risk, 51-125 RPN is High Risk.

FORMAT No.:



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Name of Facility/Equipment/Utility/System/Activity/Procedure Unit Operation: Media Fill Activity										
Unit Operation	n : Media Fill Activity			Dute of Quanty						
Name of Facili	ity/Equipment/Utility	/System/Activity/Procedure/V	Date:							
S. No.		Recommended	Respo	Target Date of Completion						
1.		NA			NA NA					
2.		NA			NA NA					
CAPA: If required, n	nention CAPA No).:		2						
	Q	uality Risk Management Tea	nm	Reviewed Head Prod	uction	Approved By Head QA				
I	Name	Department	Sign & Date	Sign & I	Jate	Sign & Date				



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Date Of Quality Risk Assessment:

QUALITY RISK ASSESSEMENT AND MITIGATION SUMMARY REPORT

Name of Facility/Equipment/Utility/System/Activity/Procedure/Unit Operation : Media Fill Activity

Verification of Action Plan: NA

Remarks (if any): The entire above failure mode and their Severity, Occurrence, Detection rating done and RPN No. is found between 1-25. Hence Risk is detected as low which is acceptable.

Verified By QA Sign & Date Approved By Head QA Sign & Date