PHARMA DEVILS

QUALITY ASSURANCE DEPARTMENT

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
Facility Processes:															
1.	RM Sampling	➢ Cross contamination ➢ Personnel/ Environment contamination while handling steroid material/product along with general products	➢ Poor quality ➢ Steroid products or materials being handled pose a risk to the operators and/or the public and/or the environment	➢ Inadequate area / Environment for sampling ➢ Inadequate handling of Product/material while Sampling ➢ Inadequate Gowning procedure ➢ No defined procedure for sampling to avoid cross contamination. ➢ Inadequate control on sampling tools ➢ Inadequate cleaning procedure for sampling device ➢ Lack of training	➢ Dedicated sampling area has been provided for sampling of Steroid RM. ➢ Adequate sampling procedure has in place. ➢ Dedicated color coded gowning has been provided for personnel, working in steroid material exposure area to avoid cross Contamination. ➢ Dedicated sampling area has been provided for sampling of Steroid RM, due to that there is no chance of cross contamination. ➢ Cleaning procedure for Sampling tools defined based on cleaning validation. ➢ SOP has been available for sampling. ➢ Training has been imparted to concerned personnel on adequate sampling and gowning procedure.	As Per SOP					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
2.	RM handling	➢ Material spillage	➢ Loss of the quantity and contamination of sampling area.	➢ Adequate sampling procedure not followed. ➢ Appropriate sampling tools not used. ➢ Lack of trained personnel.	➢ Any spillage of material while handling considered as handling loss and same handled using the spillage kit to avoid any injury to chemist or operator working. ➢ Procedure for Collection, Handling and deactivation are in place. ➢ Training has been imparted to concerned employees.	As Per SOP					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA
3.	Material safety	➢ Improper handling and storage ➢ Improper physical and chemical properties ➢ Improper personal protection	➢ Cross contamination ➢ Poor product quality ➢ Individual protection of eye, skin, respiratory, and general hygiene	➢ Inadequate procedure to handle steroid materials.	➢ Training has been imparted to all employees on following personnel hygiene and safety. ➢ MSDS is in place providing details over how to handle material, individual safety measures also mentioned under the MSDS. ➢ Material is stored as per label instruction and by following respective procedure.	As Per SOP & MSDS					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
4.	Gown Washing	➢ Cross contamination	➢ Risk of contamination is high ➢ While using common washing machine for gown of general product along with gown of Steroid exposed area. ➢ Inadequate method to deactivate steroids material adhered on gown.	➢ Inadequate Gown washing system. ➢ Inadequate Method of neutralization of material adhered on outer surface of gown.	➢ Washing shall be done after validated Steroid material deactivation. Followed by sterilization hence there's no risk of contamination. ➢ Appropriate method has been developed to ensure neutralization/deactivation of Steroids material adhered on outer surface of gown and same shall be validated.	As Per SOP					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
5.	Garment sterilization	➢ Garments are not sterilized by utilizing the validated parameters.	➢ Risk of Contamination and Microbial growth if not sterilized properly.	➢ Unqualified autoclave used for sterilization process ➢ Un-qualified load patterns used. ➢ Mechanical problem in autoclave. ➢ Working personnel lack of adequate knowledge.	➢ Washing will be done after validated Steroid material deactivation. Followed by sterilization hence there's no risk of contamination. ➢ Autoclave qualification has been done and a validated load pattern is provided to production. ➢ Preventive maintenance is done as per schedule. ➢ Trained Person handles the all autoclave processes.	As Per SOP & Autoclave Qualification Report					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA
6.	Sterile Garment storage	➢ Steroid and non-steroidal Garments hold up in same place	➢ Contaminated garment can also contaminate the aseptic area. ➢ Product contamination.	➢ No specific place provided for storing the steroid exposed area gowns	➢ No requirement of separate sterile garment storage cabinet because of Campaign manufacture Process due to that there is no chances of cross contamination in products.	As Per SOP					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
7.	Personnel	➢ Inadequate gowning (uncleaned/damaged garment, Deficient procedure) ➢ Not following personnel hygiene	➢ Cross contamination ➢ Product quality	➢ Inadequate instructions/procedure on gowning of personnel ➢ Inadequate instructions/procedure on personnel hygiene ➢ Inadequate instructions/procedure on entry exit ➢ No training	➢ Training has been imparted to all employees on following personnel hygiene and entry exit procedure. Personnel hygiene and gowning strictly followed. ➢ Personnel are trained on Good manufacturing practice and Aseptic practices. Only trained personnel are allowed to work under aseptic area. ➢ Operators are provided with all PPEs while performing activities. ➢ Medical checkup plan is in place for all employees. New employees are examined for medical fitness and then only allowed to perform manufacturing operations. ➢ Dedicated color coded gowning shall be provided for personnel working in steroid material exposure area to avoid cross Contamination.	As Per SOP					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
8.	Quality control	➢ Personnel/ Environment contamination while handling steroid material/product along with general products	➢ Steroid products or materials being handled pose a risk to the operators and/or the public and/or the environment	➢ Inadequate handling of Product/material while QC Analysis ➢ Inadequate Gowning procedure ➢ Lack of training	➢ Isolator/ glove box recommended avoiding Personnel contamination while handling powder steroids. ➢ Training shall be imparted to all concerned employees. Only trained persons shall be authorized to enter in sampling area.	As Per SOP & Training					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA
9.	RM Dispensing	➢ Personnel/ Environment contamination while handling steroid material/product along with general products	➢ Personnel/ Environmental contamination ➢ Cross contamination ➢ Poor Quality	➢ Inadequate area / Environment for sampling ➢ Inadequate handling of Product/material while Dispending ➢ Inadequate Gowning procedure ➢ Lack of training	➢ Adequate area is available for dispensing however for steroid material dispensing, no separate area available which can pose risk to person/Environment. ➢ Dedicated dispensing area has been provided for dispensing of steroid raw material ➢ Dedicated color coded gowning shall be provided for personnel working in steroid material exposure area to avoid cross contamination. ➢ Training shall be imparted to all concerned employees. Only trained persons shall be authorized to enter in dispensing area.	As Per SOP & Training					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
10.	RM Dispensing	➢ Proper cleaning not done in dispensing area	➢ Risk of contamination of Raw Material.	➢ SOP for cleaning not followed. ➢ Lack of training	➢ Steroid material dispensing has been done in separate dispensing area and area has been cleaned by following appropriate cleaning procedure.	As Per SOP					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA
11.	RM Dispensing / Sampling	➢ Malfunctioning of Dispensing / Sampling Booth (RLAF)	➢ Cross contamination.	➢ No Qualification and maintenance program for dispensing booth/Sampling Booth.	➢ For steroid dispensing and sampling area, RLAF shall be provided and same shall be qualified before usage and periodic validation shall be done as per schedule. Daily monitoring of differential pressure shall be done. ➢ Preventive maintenance schedule shall be prepared and followed.	DQ,IQ,OQ & PQ OF RLAF					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA
12.	Transfer the dispensed material from store to Manufacturing.	➢ Material spillage ➢ Material misplace during transfer.	➢ Directly impact to the product manufacturing & product quality.	➢ Inadequate handling during transferring of materials.	➢ 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 closed SS container with lock & key.	As Per SOP	4	1	1	4 Low category & Risk Accepted	➢ Adequate procedure no recommendation required.	NA	NA	NA	NA

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
13.	Manufacturing Process	➢ Cross contamination ➢ Personnel/ Environment contamination while handling steroid material/product along with general products	➢ Steroid products or materials being handled pose a risk to the operators and/or the public and/or the environment ➢ Poor product quality	➢ Inadequate handling of Steroid material/Product while; a. Charging material to Dry powder filling machine b. Charging of material to solution preparation tank ➢ Inadequate Gowning procedure ➢ Inadequate cleaning procedure ➢ Lack of training ➢ Lack of supervision of working behavior to ensure training effectiveness and compliance with relevant procedure.	➢ Campaign manufacture Process being used which is basically, Manufacture of an uninterrupted sequence of batches of the same product ; Steroid or Non steroidal in a given time period, followed by strict adherence to accepted control measures before switching to another product or different serotype on each manufacturing floor. ➢ Product wise BMR/instructions are followed for execution of batch and person involved in process are well trained. ➢ Batch to batch and Change over cleaning procedure are in place. Cleaning samples (Swab/Rinse) shall be tested for allowable previous product residue. ➢ Dedicated colour coded gowning has been provided for personnel working in steroid material exposure area to avoid cross contamination.	As Per SOP &Batch Manufacturing Record					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
14.	Entry Exit Procedure in manufacturing area	➢ Cross Contamination ➢ Area contamination	➢ Inadequate Man movement in manufacturing area lead to cross contamination/ Area contamination	➢ Inadequate Man movement ➢ Inadequate Entry Exit procedure	➢ Campaign manufacture Process being used for manufacturing of steroidal and Non Steroidal products at a time by the uninterrupted sequence of the same batches of the same product (Steroidal or No-Steroidal). ➢ Campaign Manufacturing is basically, Manufacture of an uninterrupted sequence of batches of the same product; Steroid or Non steroidal in a given time period, followed by strict adherence to accepted control measures before switching to another product or different serotype on each manufacturing floor.	As Per SOP & Training					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
15.	Cleaning validation	➢ Cross contamination	➢ Cross contamination	➢ Inadequate cleaning procedure ➢ Lack of training	➢ All steroidal products has been already considered in cleaning validation matrix and almost all manufacturing line have steroidal product as a worst case. ➢ Cleaning validation has been performed as per the determined worst case. ➢ Training shall be imparted to all concerned.	As Per SOP & Cleaning Validation Report					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA
16.	Environment	➢ Improper airflow ➢ Improper area cleaning/sanitization ➢ Inadequate control of DP, temperature/humidity ➢ Inadequate control on environment monitoring (viable-non viable)	➢ Cross contamination ➢ Product quality	➢ No interlocking system, Inadequate air flow ➢ Inadequate procedure on environment monitoring, area cleaning and sanitization ➢ Differential pressure, Temperature , RH controls are not maintained for clean rooms	➢ Approved procedures are available for environment monitoring, area cleaning and sanitization and same has been followed. ➢ Airlock rooms, entry exit change rooms, are provided. Differential pressure, temperature and RH in clean rooms are maintained and monitored regularly ➢ Production area is designed with unidirectional air flow of men and material to avoid mix-up/cross contamination.	As Per SOP, RDS, AHU Validation					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
17.	AHU	➢ Cross contamination through AHU ➢ Poor AHUs and inadequate control of air recirculation system ➢ Improper cleaning of AHU filters	➢ Area contamination followed by Product contamination	➢ No Dedicated Air handling units has been installed. ➢ AHU designed is not adequate. ➢ No procedure in place to clean AHU filters ➢	➢ Dedicated Air handling units with once through circulation has been installed. ➢ AHU designed with the filters off 10 micron, 5 micron followed by 0.3 micron HEPA filters at plenum. ➢ Approved procedure in place to clean AHU filters	DQ,IQ,OQ & PQ OF AHU					➢ Adequate control in place. No recommendation required.	NA	NA	NA	NA
18.	Material Movement	➢ Material spillage ➢ Material misplace during transfer.	➢ Directly impact to the product manufacturing & product quality.	➢ Inadequate handling during transferring of materials.	➢ All materials for aseptic area have been transferred through Dynamic pass box in tightly closed container.	As Per SOP	4	1	1	4 Low category & Risk Accepted	➢ Adequate procedure no recommendation required	NA	NA	NA	NA
19.	Manufacturing Process (Bulk solution sampling)	➢ Incorrect sampling procedures ➢ Incompatibility of sampling containers ➢ Use of non-dedicated or disposable materials	➢ It can lead to low assay results. ➢ High bio-burden rate/growth. ➢ Products cross contamination. ➢ Batch failure.	➢ Incorrect sampling procedures. ➢ Sampling done by untrained person. ➢ Wrong sampling containers used.	➢ Product sampling done as per the respective SOP. ➢ Sampling of bulk solution done by trained personnel under presence of QA person. ➢ Cleaned & Sterilized containers (glass bottles) are used for sampling.	As Per SOP	4	2	1	8 Low category & Risk Accepted	➢ Adequate procedure no recommendation required.	NA	NA	NA	NA

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

Sr. No.	Item/ Function	Potential Failure Mode (Failure Mode)	Potential Effect of Failure (Effect)	Potential Cause/ Mechanism of Failure	Current Control	Reference	S	O	D	Risk Priority Number (S*O*D)	Recommend-ended Actions (if any)	Post Risk			
												S	O	D	RPN S*O*D
20.	Product Filter	➢ Integrity test failure	➢ Product contamination	➢ Filter usage more than recommended cycle ➢ Filter use without ensuring integrity	➢ Dedicate filter are used for all products for filtration. ➢ Filter usage as per recommended cycle &maintained in log book for their cycle. ➢ Filter integrity checked before & after filtration process.	As Per SOP	4	2	1	8 Low category & Risk Accepted	➢ Adequate procedure no recommendation required.	NA	NA	NA	NA
21.	Product Filter	➢ Inadequate handling of Filter after Sterilization	➢ Direct impact on Product Sterility & Quality	➢ On line product sterilization facility not available.	➢ Product filter sterilized along with tank & Product line and after that no any manual interference allowed.	As Per SOP	4	2	1	8 Low category & Risk Accepted	➢ Adequate procedure no recommendation required.	NA	NA	NA	NA
22.	Filtration process	➢ Non-Integral filters used for filtration process	➢ Filled product remains non-sterile. ➢ High bio-burden results after pre filter. ➢ Chemical & Microbial contamination increases in solution.	➢ Damaged/faulty filters used for filtration process. ➢ Human error. ➢ Working personnel lack of adequate knowledge.	➢ Each filter has a “certificate of test” from supplier. ➢ Pre and post integrity test are conducted before and after filtration process respectively and print out attached with Batch manufacturing record. ➢ Training provided to persons.	As Per SOP & BMR	4	2	1	8 Low category & Risk Accepted	➢ Adequate procedure no recommendation required.	NA	NA	NA	NA

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

Name of Facility/Equipment/Utility/System/Activity/Procedure/Unit Operation: General Products And Steroids In Shared Manufacturing Facility	Date:

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

S.No.	Recommended Action	Responsible Person	Target Date of Completion
1.	NA	NA	NA
2.	NA	NA	NA

CAPA: Not required

If required, mention CAPA No.: NA

Quality Risk Management Team			Reviewed By Head Operations Sign & Date	Approved By Head QA Sign & Date
Name	**Department**	**Sign & Date**		

QUALITY RISK ASSESSMENT AND MITIGATION PLAN

QRA No.:

Name of Facility/Equipment/Utility/System/Activity/Procedure **Unit Operation**: General Products And Steroids In Shared Manufacturing Facility	**Date of Quality Risk Assessment:**

QUALITY RISK ASSESSEMENT AND MITIGATION SUMMARY REPORT

Name of Equipment: General Products And Steroids In Shared Manufacturing Facility

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 3 to 12. Hence Risk is detected as low which is acceptable.

Verified By
QA
Sign & Date

Approved By
Head QA
Sign & Date