# QUALITY RISK ASSESSMENT & MITIGATION PLAN (FAILURE MODE EFFECT ANALYSIS FOR REMOVAL OF LOWER IN OINTMENT & ORAL LIQUID SECTION IN SECONDARY PACKING AREA)

# FAILURE MODE EFFECT ANALYSIS FOR REMOVAL OF LOWER IN OINTMENT & ORAL LIQUID SECTION IN SECONDARY PACKINGAREA)

1. **OBJECTIVE:** To provide the documented evidence that there is low level of risk in case of "Removing of Lower in Ointment & Oral Liquid Section Secondary Packing Area".

2. **SCOPE:** The Scope of this document is limited to Secondary Packing Gowning in Ointment & Oral Liquid Section at …….. facility.

3. **RESPONSIBILITY:**

| Department | Responsibility |
|---|---|
| Quality Assurance | • Preparation, Review, and Compilation of FMEA<br>• Post Approval of FMEA |
| Production | • Review of FMEA |

4. **REASON FOR RISK ANALYSIS:**
To mitigate & monitor the risk associated with the "Removing of Lower in Ointment & Oral Liquid Section of the Secondary Packing Area".

5. **SITE OF STUDY:**

6. **RISK COMMUNICATION & TRAINING:**
- The Risk analysis team shall be authorized by the Head-QA or his/her designee.
- Quality Risk Management Team shall be cross functional team comprised of expert from different areas.
- Training shall be imparted to the concerned team.

7. **RISK IDENTIFICATION, EVALUATION & MITIGATION:**

**INTRODUCTION**:

**Gowning:** The Process of wearing special garments in order to control particulate contamination.

**Importance of Gowning:** Correct Gowning Procedure are also of Paramount importance .One of the problem with particulate contamination is that it is largely invisible to the naked eye, any contamination introduced into the clean room on the outer surface of clothing will go unnoticed and so any breakdown in correct gowning procedure will not be immediately apparent. Thus it is vital that operator are well versed and well-practiced in correct gowning procedure, it can be very helpful if a system of mutual help is in place that is the operators observed each other and in a non-threatening way point out faults that may occur.

As per the gowning procedure "Entry and Exit Gowning Procedure for Visitor, Staff, Worker in Ointment & Oral Liquid Section" Personnel Wear firstly Cap, Apron and Lower in sequence then entry in Secondary Packing Area.

There are typically 03 levels of product exposure. Generally, the division of levels is directly related to the product exposure as well as to the physical environment within the facility. These levels are typically separated into categories such as **Level 1 (Black)**, **Level 2 (Gray)**, and **Level 3 (White)**. The highest level of risk for product exposure is a White space, compared to a Black space has the least stringent protective parameters due to virtually zero product exposure. An example of a "Black" space would be a shipping and receiving loading dock for manufacturing which is adjacent to a GMP warehouse.

The product in secondary packing areas are typically protected by an additional packaging layer surrounding the primary packaging or container with little to no risk of product exposure to the environment.

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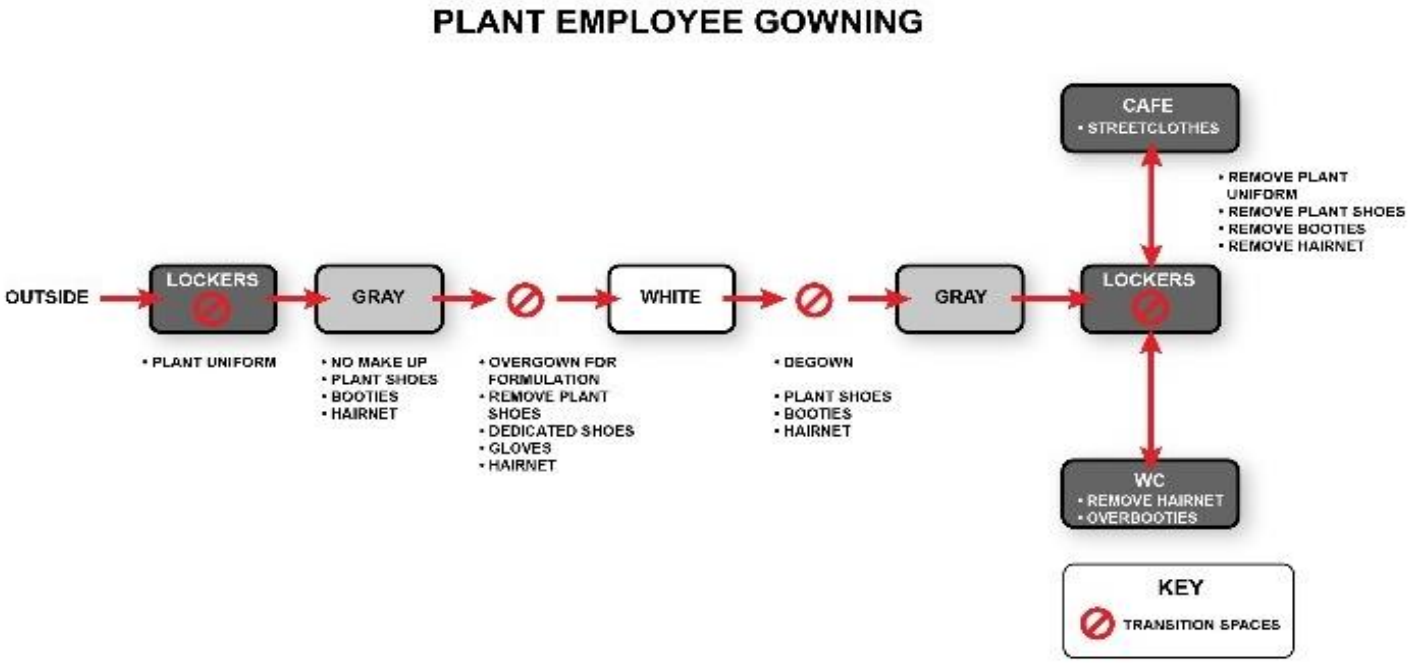
An area such as **Secondary Packaging** could be considered a "Grey" space because while the product is not exposed, the **Primary Packaging handling** and **physical environment** can have an effect the finished product.

Since the regulatory agencies provide open-ended guidelines on gowning requirements and physical environments, the decision of how to handle operational procedures and gowning can be based on a risk assessment program.

**The following specific gowning procedure that can be found in pharmaceutical companies:**




**Level 1: (Black) General:** An area within the facility that has no potential for product or product contact surface exposure to the environment or personnel. Such areas include where environmental conditions are determined to have no direct or indirect impact on the product. Environmental control may be provided for staff comfort, and these systems should be designed, specified, and commissioned following GEP.

**Level 2: (Grey) Protected:** An area within the facility that has no potential for product exposure to the environment or personnel; however, the environment or activities in this area may directly and/or indirectly impact the product. In these areas, design considerations or procedural controls are utilized to protect the product and materials or components, which will contact or become part of the product.

**Level 3: (White) Controlled:** An area within the facility in which specific environmental/facility conditions and procedures are defined, controlled, and monitored to prevent degradation or cross contamination of the product.

**The areas include:**

- **Sampling**
- **Dispensing**
- **Manufacturing**
- **Primary packing**

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Where the product, raw materials, or components are exposed to the room environment, plus equipment wash and storage areas for equipment product contact parts. Within controlled areas, environmental conditions, including temperature, humidity, and air filtration quality will be specified and validated.

**Note:** Although regulatory agencies provide manufacturers with some direction on how to protect drug product by means gowning and stipulated hygiene, it is clear that the exact procedure is ultimately left to the manufacturer as the decision-maker. Since the regulatory agencies provide open-ended guidelines on gowning requirements and physical environments, the decision of how to handle operational procedures and gowning can be based on a risk assessment program.

**GOWNING PROCEDURE AT …….. SITE**

**Gowning for Staff** (Secondary Packing) **Gowning for Visitor**(Secondary Packing)

As per the proposal, lowers to be removed for the persons working in Secondary packing area.

| RISK IDENTIFICATION | RISK EVALUATION | RISK MITIGATION |
|---|---|---|
| Removing of lower (Secondary Packing area) from the gowning procedure may leads to contamination of the adjacent Areas (Ointment & Lotion Decartoning Area no. 01, 02, 03, 04, Liquid Manufacturing airlock & Liquid Filling areas). | Risk of contamination in Secondary packing area is low, as secondary packing line is used for packing of Ointments & Oral liquids. These both are sealed within the grade D area of filling. While secondary packing area is CNC (Clean non Classified) area where only secondary or tertiary packing material is exposed to the environment. Hence removal of lower from the secondary packing area does not have any impact on product quality. While there may be the risk of contamination in adjacent classified areas (Decartoning areas of Ointments & Airlocks of Oral Liquid Manufacturing & Filling). | The removal of lower will be implemented for Secondary packing personnel only. Further the dedicated persons for Liquid manufacturing & filling will wear the complete gowning along with the lower, in any case if a person enter the manufacturing or filling area, then there will be the provision to wear lower & secondary gowning. |

**FAILURE MODE EFFECT ANALYSIS FOR REMOVAL OF LOWER IN OINTMENT & ORAL LIQUID SECTION IN SECONDARY PACKINGAREA)**

## 8. RISK ASSESSMENT TOOL:

In the following section a table is produced for the risk analysis using FMEA tool. The significance or Instruction for each column is described in the following paragraph.

| | |
|---|---|
| **Column 1** | Serial number of Risk Analysis item. |
| **Column 2** | Item/Function: Identify the process step or component associated with the risk. |
| **Column 3** | Potential Failure Mode: Identify the type of risk associated with the process or component. |
| **Column 4** | Effect of Potential Failure/Cause: Verify that whether risk have GMP impact. |
| **Column 5** | Potential Cause |
| **Column 6** | Risk Mitigation as a Current Control: Write the risk mitigation strategy as considered in design. |
| **Column 7** | References |
| **Column 8/9/10/11** | Severity/Occurrence/Detection/Risk level/Risk Acceptance: Risk Priority Number to be calculated by taking Severity, Occurrence & Detection of potential failure into consideration. |
| **column 12** | Recommended action: Recommended actions should be given for controlling failure occurrence. |
| **Column13/14/15/16** | Severity/Occurrence/Detection/Risk level/Risk Acceptance: After recommendation implementations, Risk Priority Number to be calculated by taking Severity, Occurrence & Detection of potential failure into consideration. |

**Table 1:** Instruction for each column given above

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# FAILURE MODE EFFECT ANALYSIS FOR REMOVAL OF LOWER IN OINTMENT & ORAL LIQUID SECTION SECONDARY PACKINGAREA

| **Name of Facility/Equipment/Utility/System/Activity/Procedure/Unit Operation:** Removal of Lower in Ointment & Oral Liquid Section Secondary Packing Area | **Quality Risk Assessment Date:** …… |
|---|---|

| S.No. | Item/ Function | Potential Failure Mode (Failure Mode) | Potential Effect of Failure | Potential Cause/ Mechanism of Failure | Current Control | Reference document No. | S | O | D | Risk Priority Number (SxOxD) | Recommended Actions (if any) | Post Risk Evaluation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | S | O | D | RPN SxOxD |
| 1. | Removing Lower in Ointment & Oral Liquid Section Secondary Packing Area | • Contamination of adjacent areas (Ointment Decartoning areas & Airlock of Oral liquid manufacturing & filling areas)<br>• Contamination of Product that was running in Packing Line<br>• Same secondary packing area change room is used for the entry in liquid Manufacturing area | • Product failure<br>• Market Complaint<br>• Adjacent areas failure | • Product Running in Ointment &Oral liquid filling area may got Contaminated<br>• Product running in secondary packing got contaminated | • Secondary gowning is in place for entry in Oral liquid manufacturing & filling area.<br>• Adjacent Decartoning areas are locked and opened with permission whenever needed.<br>• Secondary packing is done in areas.<br>• Finished product is released after receiving results. | • Analysis, Approval and Rejection of Bulk/Semi Finished/Finished Sample<br>• Sampling of In process Bulk ,Semi-finished and finished Product in Oral Solid Dosage ,External Preparation and Oral Liquid is in Place<br>• Prevention of Contamination, Cross contamination and Mix-up<br>• Entry and Exit Procedure for Visitor, | 1 | 1 | 1 | 1<br>**Severity:** Severity is low as chance of contamination in packed product is nil.<br>**Occurrence:** No chance of contamination as products are already sealed in filling under classified areas.<br>**Detectability:** **Always** detect as product is tested and released after receiving COA. | • Pictorial diagrams to be updated<br>• SOP or gowning to be revised. | NA | NA | NA | NA |

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## FAILURE MODE EFFECT ANALYSIS FOR REMOVAL OF LOWER IN OINTMENT & ORAL LIQUID SECTION SECONDARY PACKINGAREA

| S.No. | Item/ Function | Potential Failure Mode (Failure Mode) | Potential Effect of Failure | Potential Cause/ Mechanism of Failure | Current Control | Reference document No. | S | O | D | Risk Priority Number (SxOxD) | Recommended Actions (if any) | Post Risk Evaluation | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | S | O | D | RPN SxOxD |
| | | | | | | Worker in Ointment & Oral Liquid Section<br>• Prevention of Contamination, Cross contamination and Mix-up | | | | | | | | | |

Where: S=Severity; O=Occurrence Probability; D=Detection

**Assessment of Severity, Occurrence and Detection:**

| Severity Effect | Likelihood Occurrence | Likelihood of Detection | Rating |
|---|---|---|---|
| No Effect | Unlikely | Always Detected | 1 |
| Moderate Effect | Possible | Might Detect Failure | 2 |
| Serious Effect | Almost Certain (Every time) | Lack of Detection Control | 3 |

**Evaluation of RPN:**

| RPN Rating | Category |
|---|---|
| 12 to 27 | High |
| 7 to 11 | Medium |
| Upto 6 | Low |

| S.No. | Recommended Action | Responsible Person | Target Date of Completion |
|---|---|---|---|
| 1. | Pictorial Shall be updated and same shall be mention in SOP "Entry and Exit Procedure for Visitor, Worker in Ointment & Oral Liquid Section". | | |

**CAPA (Required/Not Required):** Not Required

**If required, mention CAPA No.:** ……..

# PHARMA DEVILS

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## FAILURE MODE EFFECT ANALYSIS FOR REMOVAL OF LOWER IN OINTMENT & ORAL LIQUID SECTION SECONDARY PACKINGAREA

| Quality Risk Management Team | | | Reviewed By Head Operations (Sign & Date) | Approved By Head QA (Sign & Date) |
|---|---|---|---|---|
| **Name** | **Department** | **Sign & Date** | | |
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**Verification of Recommended Action:**

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**Remarks (if any):**

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**Verified By**
**Operating Person QA**
**(Sign & Date)**

**Approved By**
**Head QA**
**(Sign & Date)**

## 9. CONCLUSION:

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## 10. REFERENCES:

- Reference SOP of Risk Assessment.
- https://ispe.org/pharmaceutical-engineering/ispeak/osd-gowning-procedures-knowledge-brief.

## 11. DOCUMENTS TO BE ATTACHED:

Not Applicable

## 12. DEVIATION FROM PRE DEFINED SPECIFICATION, IF ANY:

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## 13. CHANGE CONTROL, IF ANY:

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## 14. ABBREVIATIONS:

| | |
|---|---|
| FMEA | : Failure Mode Effect Analysis |
| RPN | : Risk Priority Number |
| CAPA | : Corrective action preventive action |
| SOP | : Standard Operating Procedure |
| QRM | : Quality Risk Management |
| QA | : Quality Assurance |

# FAILURE MODE EFFECT ANALYSIS FOR REMOVING OF LOWER IN OINTMENT & ORAL LIQUID SECTION PACKINGAREA

## 15. FMEA APPROVAL:

### PREPARED BY:

| DESIGNATION | NAME | SIGNATURE | DATE |
|---|---|---|---|
| OPERATING PERSON (QUALITY ASSURANCE) | | | |

### REVIEWED BY:

| DESIGNATION | NAME | SIGNATURE | DATE |
|---|---|---|---|
| OPERATING MANAGER (QUALITY ASSURANCE) | | | |
| OPERATING MANAGER (PRODUCTION) | | | |

### APPROVED BY:

| DESIGNATION | NAME | SIGNATURE | DATE |
|---|---|---|---|
| HEAD (QUALITY ASSURANCE) | | | |