SOP TITLE: **INSPECTION, SAMPLING AND DISPOSITION OF RAW MATERIALS**

1. **Objective:**

The objective of this document is to establish a standard written procedure for inspection, sampling, handling & storage procedure in order to get representative sample of whole lot for Quality Control analysis.

1. **Scope:**

This procedure is applicable to all raw materials (Active pharmaceutical ingredient, Excipient, Flavors and coloring agent) which are received in Warehouse for the preparation of pharmaceutical and nutraceutical products**.**

1. **Reference:**
   1. WHO Technical Report Series, No. 929, Annex 4, guidelines for sampling of pharmaceutical products and related materials.
   2. Drug Act 1976- Schedule B-II
2. **Responsibility:**
   1. Executive QC/Designated person is responsible to prepare, revise and follow the SOP
   2. Warehouse person (dispensing) is responsible to arrange sampling.
   3. Designated QC person is responsible for sampling of raw materials & sampling operator will facilitate the sampling operation.
   4. Designated QC person is responsible to ensure the material is received from approved vendor by referring the approved vendor list.
   5. Sr. Executive Quality Control/Designated person is responsible to take the sample for microbial testing.
   6. Manager QC / Designated person is responsible for training of this SOP.
   7. Manager QC (Microbiology)/Designated person is responsible to provide training of SOP.
   8. Senior Manager QC /Designated person is responsible for the implementation of this SOP.
   9. QA Department is responsible for controlling of SOP.
3. **Definitions:**
   1. Batch:

A quantity of any drug produced during a given cycle of manufacture.

* 1. Sample:

A portion of a material collected according to a defined sampling procedure.

* 1. Sampling unit:

Discrete part of a consignment such as an individual package, drum or container

* 1. Consignment:

The quantity of a bulk starting material, or one manufacturer or supplied by an agent, and supplied at one time in response to a particular request or order.

* 1. Sampling plan:

Description of the location, number of units and / or quantity of material that should be collected, and associated acceptance criteria. Analyst responsible for performing the sampling operations.

1. **Materials & Equipment:**
   1. Scissor
   2. Plier / Cutter
   3. S. S. Scoop
   4. Sampling thieve
   5. Polybag
   6. Cable tie
   7. S. S. Dip Tube
   8. S.S. Funnel
   9. Surgical Gloves
   10. Mask
   11. Sterile glass tubes
   12. Weighing balance
2. **Precautions:** 
   1. QC person shall read the material safety data sheet (MSDS) before performing sampling of raw materials.
   2. Do not touch any material with bare hands.
   3. Carry out the sampling of in-active raw material first and then followed by the active raw materials in case sampling of both raw materials are planned.
   4. Follow GMP gowning and degowning (head gear, dungaree, mask, gloves and GMP shoes) and change after each product sampling change over.
   5. During Sampling, sampling tools should be only used.
   6. During sampling, Certificate of Analysis (COA) should be attached with GRN
   7. The Analyst must read the MSDS of material before sampling to follow the precautions.
   8. PPEs (e.g. mask goggle, gloves) should also be worn when handling raw materials.
   9. If specific safety precautions are required, like use of respiratory equipment, the analyst should be properly trained in its use.
   10. After sampling close the container immediately for material and personnel safety.
3. **Procedure:**
   1. **Inspection of Sampling Booth:**
   2. Analyst shall start sampling booth at least fifteen minutes before initiating sampling activity.
   3. Engineering shall ensure Differential Pressure is within the set limits (100 Pascal).
   4. Raw materials (Shell, Powder and liquid) to be sampled will be placed under the sampling booth.
   5. Before sampling QC person shall ensure that sampling booth is clean and free from previous materials.
   6. Engineering shall ensure the temperature NMT 25°C ± 2°C and as well as RH NMT 60% or as per material nature.
   7. Analyst shall ensure that the weighing balance is verified by Log book (Document No. WHG/5/004) before sampling.
   8. Warehouse Staff shall make sure cleaning of sampling tools is done as per procedure SOP No.QCG/2/086.
   9. **Requirement Before Sampling:**
4. Raw material warehouse provides SAP generated GRN to QC with the required documents provided by the supplier. It should include:
5. Certificate of Analysis – required for all local and imported items.
6. Form 3 and 7 of the respective raw materials – required for imported items.
7. On receipt of quarantine list (T-Code Qa32) and GRN from warehouse, raw material section Incharge will plan sampling as per requirement or FIFO basis and enter the relevant information in sheet titled “Daily QC Planning Sheet of Raw Material Section” Document No. QCG/5/080)
8. Raw material Team Leader should inform to warehouse In-charge before sampling regarding plan of the day, warehouse in charge need to arrange the material for sampling on time.
9. Sampler should carry the sampling box or bucket contain sampling accessories including.

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| **Table No. 8.2.4 Sampling Tools & Accessories** | | | | |
| **S.No.** | **Types of Raw Material** | **Type Of sampling Containers** | **Tools(Utensils)** | **Label** |
| 1 | Powder | mandatory to close the polybags with cable tie | * Rod/ Thieves * Scoop | **SAP Generated Status**   * Sampled * Released * Rejected * Hold |
| 2 | Light sensitive powder | Mandatory to close the Amber bottles with stopper and cap |
| 3 | Liquid | Amber glass bottles with cap | * Dip Tube |
| * Cleaned * Tool To Be Cleaned |
| 4 | Pellets | mandatory to close the polybags with cable tie | * Rod/ Thieves |
| 5 | Capsule Shell | mandatory to close the polybags with cable tie | * Scoop |
| 6 | Volatile Liquid | Glass Bottle with air tight seals | * Dip Tube |
| 7 | Note:   * All sampling containers must be cleaned, dry and of suitable material to preserve the integrity of the material (e.g. Never use the plastic container for sampling of concentrated acids). * Make sure the Sampling tools are cleaned and properly covered in clean bag with affixed “as per procedure (SOP No.QCG/2/086).on it. | | | |

1. Sampling Quantity for API, Excipient and Microbiological Testing

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| **Table No. 8.2.5 Sampling Quantity of API, Excipient For Chemical/ Microbiological Testing** | | |
| **S. No.** | **Raw Material** | **Sampling Quantity**  **(include with Retention Sample)** |
| 1. | **API** | 60 gram |
| 2. | **Excipient** | 90 gram |
| 3. | **Liquid / Solvent** | 60 ml |
| 4. | **Sucrose** | 300 gram |
| **For Microbiological Testing** | | |
| 5. | **API** | 60 gram |
| 6. | **Excipient** | 30 gram |
| 7. | **Liquid / Solvent** | 30 ml |

* 1. **Sampling** **of Raw Material:**
     1. After getting the GRN, sampler should verify the source against “Qualified/ Approved Vendor List”, (QAG/5/037),(QAG/5/060),(QAG/5/081), (QAG/5/082), (QAG/5/086), (QAG/5/199), (QAG/5/200),
     2. Sampler should wear PPEs (Personal Protective Equipment) e.g. Dungaree, surgical gloves, mask, cap, goggle and shoe covers (booty), as per procedure (SOP No. QCG/2/087)
     3. The Analyst will proceed to enter in the warehouse to inspect the Quarantine Area.
     4. In the first stage, Analyst will check the physical condition of container/drum/bags.
     5. Each drum/container/bags should bear a “Quarantine Label” (Document No.WHG/5/051)
     6. Containers of different materials and different lots of the same material should be placed on separate pallets to avoid the mix-up.
     7. The Analyst will enter in sampling booth as per procedure (SOP No. QCG/2/087)
     8. Analyst should inspect the sampling booth as per procedure (WHG/5/036) (Cleaning of dispensing booth, sampling booth and filters in warehouse)” (SOP No. WHG/2/005).
     9. Warehouse staff is responsible to bring the material for sampling in the sampling booth through material air lock.
  2. **Inspection** **of** **Materials:**
     1. Each raw material should be checked for the following:
        1. Quantity
        2. Physical Condition
        3. Cleanliness
        4. Proper Labeling
     2. Yellow Colored “Quarantine Label” (Document No. WHG/5/051) should be checked thoroughly and verify the following parameters that should correspond to the relevant GRN:
        1. GRN No.
        2. GRN Date
        3. Material Code
        4. Material Description
        5. Batch Number
        6. Supplier Batch Number
        7. Mfg. Date
        8. Expiry Date
        9. QC Lot No.
        10. Received Quantity
        11. No. of Container
        12. Pack Description
     3. Vendor label should also be checked for the following parameters that should also correspond to the relevant GRN.
        1. Material Name
        2. Manufacturer’s Name
        3. Lot Number/Supplier Batch number
        4. Manufacturing Date
        5. Expiry Date or Retest Date
     4. Analyst should verify the Sampling Quantity of Active, Excipient for chemical /microbiological Raw Material (Reference Table No. 8.1.5 for Analytical Testing)
     5. Analyst should verify the storage condition of Raw Material against sheet of “Storage Conditions of Raw Material” (Document No. QCG/5/227)
     6. If any container is found damaged or if the Label appears to incorrectly describe the material, Analyst should inform the raw material section Incharge to take immediate action.
     7. Each supply should be accompanied by the Vendor Analytical Test Report for QC record.
  3. **Sampling Plan:**
     1. Analyst should complete the physical inspection and filled “Inspection & Sampling Report (Raw Material)” Document No.: QCG/5/197)

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| **Table No.8.5.1 Sampling Plan of Raw Material** | | | |
| **S #** | **Type Of RM** | **Sampling Plan** | **Sampling Quantity** |
| 1. | API | * In case of API, sampling will be carried out 100% | Analyst should verify the Sampling Quantity of Active, Excipient and Microbiological Raw Material (Reference Table No. 8.2.5 Sampling Quantity for API, Excipient for Chemical/ Microbiological Testing) |
| 2. | Excipient | * Sampling is to be done by Square root plan +1,   for excipients only.   * Where n = No. of containers/bags received. * However; if n ≤ 3, then sampling to be done from   100% container. | Analyst should verify the Sampling Quantity of Active, Excipient Chemical/Microbiological Raw Material (Reference Table No. 8.2.5 Sampling Quantity for API, Excipient chemical/ Microbiological Testing) |

* + 1. The sample size should be sufficient to allow all anticipated test procedures to be carried out in current testing. Further sufficient quantity to be reserved for future as retention sample of Raw Material to carry out at least two testing if required.
    2. Sampling of Sorbitol Solution 70% and Glycerin will be carried out on 100% container. Individual sample will be collected from each container of sorbitol and glycerin to perform the identification test of Ethylene Glycol and Diethylene Glycol.
  1. **Sampling Precaution:**
     1. During sampling multiple containers should not be opened at the same time, next container to be opened after the sealing of first one.
     2. The sampling time should be minimum in case of light or moisture sensitive material to avoid contamination or unnecessary exposure to environment.
     3. Sampled material must not be returned to bulk containers.
     4. Tools must be cleaned with fixation of “Cleaning of Utensils of Sampling Booth (Scoops, Sampling Thieve / Rod, Dip Tube).” (SOP No.QCG/2/086).
     5. For photosensitive materials, the sample will be withdrawn from the container under low lighting, preferable less than 10 lux in an amber colored bottle/ polybag/sterile glass tube and Cover with black polybag
  2. **Sampling Procedure for Powder and Pellets:**
     1. During Sampling for Identification of the sample NIR must be used according to (SOP No. QCG/2/080)
     2. Remove the cover from sampling rod/thieves and insert it vertically into the container and make sure that all three sampling compartments on the sampling rod/thieve should be closed.
     3. When sampling rod/thieve is completely immersed in powder/pellets then open the sampling compartment by turning around the internal rod/thieve and ensure to collect powder/pellets in respective compartments.
     4. Takeout the sampling rod/thieve from container after closing the sampling compartments.
     5. Preferably withdraw the sample from top, mid and bottom of the container with the help of cleaned/sterile spatula and store it in properly information in bottle/ sterile glass tube polybag sealed with cable tie. Analyst will write on front side on bottle/polybag/sterile glass tube mentioned below information.

1. Material Name
2. Batch Number
3. No of Container.
   * 1. After sampling cover the sampling rod/thieves and dip tube with wrapping paper or polybags to avoid contamination with affixing the status label “Tool to Be Cleaned” Document No. (QCG/5/226) and displace the labelled used sampling rod/thieves dip tube/rod to washing area of warehouse/QC department.
   1. **Sampling Procedure for Saccharomyces Boulardii:**
      1. Sampling of Saccharomyces Boulardii shall be carried out in sterile glass tube in controlled humidity area (RH ≤ 35%) as well as Temperature NMT 30 °C
      2. Sr. Executive QC Microbiology/ designated person inspect each bags physically against COA.
      3. Same procedure to be perform as defined in raw material sampling.
      4. Note: During physical inspection containers found damaged and segregate any damaged containers as well as QC person will inform QC Manager and note in Inspection & Sampling Report and Paste the Hold Label (QAG/5/008).
   2. **Sampling Procedure for Sterile Raw Materials:**
      1. Sterile Materials shall be sampled under aseptic conditions, in sterile glass bottles to avoid the risk of loss of sterility.
      2. The QC person must inspect all the containers / consignment physically according to manufacturer’s approved supplier list own specification as per certificate of analysis (COA) provided by the manufacturer and GRN, including description of item, lot number or batch number, manufacturing date, expiry/ re-evaluation date, source, storage condition and general physical condition of the containers and note down the specification as per COA in the inspection & sampling report (QCG/5/197).
      3. Inspect each container for its physical appearance and storage condition.
      4. The QC person must inspect all the containers / consignment for proper sealing & labeling (manufacturer label & ware house Quarantine label).
      5. If vials are provided with container, QC person will forward the vial sample to analyst in QC lab then paste the Sampled Label (QAG/5/009).
      6. If vials not provided with consignment, then QC analyst calculate the potency from COA provided by Manufacturer & given released label on the basis of COA & vials sampled by during filling of 1st batch for testing purpose.

**Note:** During physical inspection if any container found damaged or dented, the Hold Label (QAG/5/008) will be pasted and informed to QC Manager. If material is not exposed, sampling will be performed on QC Manager’s decision. In case material is exposed, supply chain department will be informed and Raw Material Rejection Note (QCG/5/232) will be issued as per procedure.

* 1. **Sampling Procedure for Liquid:**
     1. Remove the cover and insert dip tube vertically into the drum containing liquid in specified position i.e. top of the drum to collect liquid sample.
     2. Takeout the dip tube from drum, collect the sample into properly cleaned, Analyst will write on front side on bottle/sterile glass tube mentioned below information.

1. Material Name
2. Batch Number
3. No of Container.
   * 1. Sampled material must not be returned to bulk containers.
     2. After sampling cover the sampling dipper with wrapping paper or polybags to avoid contamination with affixing the status label “Tool to Be Cleaned” Document No. (QCG/5/226) and displace the labelled used sampling rod/thieves dip tube/rod to washing area of warehouse.
   1. **Sampling Procedure of Capsule Shell:**
      1. Remove the cover from sampling scoop and insert vertically into the container containing capsule shells and collect the sample into information in bottle/sterile glass tube/polybag sealed with cable tie. Analyst will write on front side on bottle/sterile glass tube/polybag mentioned below information:
4. Material Name
5. Batch Number
6. No of Container
   * 1. After sampling cover the sampling scoop with wrapping paper or polybags to avoid contamination with affixing the status label “Tool to be Cleaned” Document No. (QCG/5/226) and displace the labelled used sampling rod/thieves dip tube/rod to washing area of warehouse.
   1. **Retest of Materials:**
      1. QC person will run T-code (QA07) on SAP for generate Retest material GRN before one month of retest date expire.as per SOP(QCG/2/83)
      2. It should be placed in quarantine area, should be sample again and sampled by QC person same procedure to be perform as defined in raw material sampling.
   2. **Cleaning of Sampling Tools:**
      1. Cleaning of sampling tools should be done as per procedure (SOP No.QCG/2/086).)
      2. After cleaning all sampling tools should be sanitized with 70% IPA and individually covered in suitable size clean bag.
      3. After sampling, close all the drums, containers and bags as per requirement, i.e. the inner and outer poly bags should be closed with cable tie.
   3. **Labelling and Log Book Entry at Warehouse:**
      1. Put the numbering on the sampled drums for traceability of sampling in the following manner e.g. If 25 containers received, then give container number like 1/25 to 25/25 with reference to drum number of container sampled.
      2. Before sampling, Yellow Colored” status “Quarantine Label” (Document No. WHG/5/051) must be pasted on containers, as per “n” plan role,
      3. The responsibility of “Yellow Colored” status “Quarantine Label” (Document No. WHG/5/051) will be the warehouse staff.
      4. After completion of sampling a “Green Colored” status “Sampled Label” QAG/5/009) from system using T-Code (ZQM\_LABELS) is duly signed and date by the analyst should be pasted on Quarantine Label (Document No. WHG/5/051) of the container from which the sample is drawn.
      5. “Sampled Label” (QCG/5/009) should carry the following information:
         1. Material Name:
         2. Batch No.
         3. Supp Lot #:
         4. Supp/Mfg Name:
         5. Received Quantity:
         6. Sampled Quantity:
         7. Container No.
         8. Sampling date and time:
         9. Sampled by (Name, Sign & date)
      6. Enter the sampling details in the “Raw material incoming Sample Log Book” (Document No. QCG/5/082) present in the warehouse.
   4. **Sample Storage/ Disposition/ Record Keeping at QC Lab:**
      1. After sampling the analyst will enter the relevant information in “Raw Material in coming Sample Log Book” Document No.: QCG/5/082) present in QC lab.
      2. The Analyst is responsible to place the samples in designated place in QC Lab according to their respective storage condition:
   5. **Desiccators** : for raw materials to be kept at room temperature
   6. **Refrigerator** : for raw materials to be kept at Refrigerator
   7. **Freezer** : for raw materials to be kept at Freezer
      1. If tested material complies all the parameters of specification, Analyst enters the testing data on log book” Raw material Testing Register Document No.: QCG/5/184) and hand over to Team Leader for review
      2. After review and signing the log book, Team Leader will hand over it to Analyst, who will record the result in Spectrum LIMS
      3. Team Leader will release the material in SAP and print “Green Colored” “Released Label” Document No.: QCG/5/057) from system using T-Code (ZQM\_LABELS) and analyst will affix Label with signature and date on the container.
      4. Store Incharge will immediately shift the released material from Quarantine to Released Area.
      5. If the material does not meet the specifications, Analyst inform to raw material section Incharge for final decision and Raw Material Team leader will print “Mustard Colored” “Hold Label” (Document No. QAG/5/008) and immediately hold the consignment and analyst paste label on containers.
      6. Raw material section Incharge will investigate the reason of noncompliance through SOP of Laboratory Investigation for OOS and OOT (SOP No. QCG/2/60 and SOP No. QCG/2/73)
      7. Raw material section Incharge will reject the material in SAP and print the “Red Colored “Rejected Label” (Document No. QCG/5/058) from system using T-Code (ZQM\_LABELS)
      8. Analyst will affix the Label with signature and date on the containers lying in the Quarantine Area.
      9. Store Incharge will immediately shift the rejected material in the Rejected Area.
   8. **Retention Sample Keeping:**
      1. Analyst will keep the sample as Raw Material Retention Sample after writing the following information on “Retention Sample Label (Raw Material)” Document No. QCG/5/019).
         1. Material Name :
         2. Batch No. :
         3. Supplier Name :
         4. Manufacture Name :
         5. Manufacturer Lot No. :
         6. Mfg. Expiry/Retest Date :
         7. Mfg. Expiry + 1 Year :
         8. Filled on :
         9. Filled by :
      2. Analyst will enter the relevant information in “Retention Sample Record of Released Raw Material” (Raw material incoming sample Log Book) Document No. (QCG/2/082) present in QC lab for traceability.
      3. The retention samples are placed in separate alphabetical shelf with proper labelled and store according to storage condition mentioned till expiry + 1 year.
      4. If material is rejected, replace the label of retention sample and then Retention Sample should be destroyed immediately. According to “Disposal of chemical waste of laboratory (SOP No. QCG/2/008) and record maintained in Log book for Daily Chemical Waste (Document No. QCG/5/098).
7. **Training:**

Training will be imparted to the concerned personnel prior to implementation of this SOP and will be recorded on QAG/5/142.

1. **Attachments:**
   1. Inspection & Sampling Report : QCG/5/197
   2. Storage Conditions of Raw Material : QCG/5/227
   3. Raw Material Rejection Note : QCG/5/232
2. **Distribution List:**
3. **SOP Review History:**