7. SAMPLING AND TESTING OF PLANT AND EQUIPMENT SWAB

SCOPE:

To test the hygienic conditions of plant and equipment swab for microbiological parameters such as SPC and coliform.

DILUENT, CULTURE MEDIA AND REAGENTS:

- Plate Count Agar (PCA)
- Violet red bile agar (VRBA)

APPARATUS, INSTRUMENTS AND GLASSWARES:

- Laminar airflow chamber
- Autoclave
- Hot air oven
- Sterile petri plates
- Colony counter
- Weighing balance
- Dilution bottles
- Screw cap bottles
- Sterile swab sticks
- Water bath
- Test tubes
- Sterile spatula
- Micropipette
- Sterile tips

PROCEDURE:

- Take 100 ml saline solution in screw capped bottles.
- Sterilize in autoclave at 121 ^{o}C ± 0.5 ^{o}C for 15 lbs for 15 min.
- Select the equipments (silos, machines etc.) to be sampled after cleaning.
- Open the sterile swab cover and grasp the end of the sterile swab stick, being careful not to touch any portion that might be inserted into the bottle.
- Open a bottle with dilution water, moisten the swab head, and press out the excess solution against the interior wall of the bottle with a rotating motion.
- Place the sterile 10cm x 10cm template on the sampling surface.

- Hold the swab handle to make a 30° angle contact with the surface.
- Rub the swab head slowly and thoroughly over approximately 10cm x 10cm ($100cm^2$) of surface area three times by reversing the direction between strokes.
- Return the swab head to the bottle, rinse briefly in the solution & replace the screw cap.
- Mark the outside of the bottle with sample identification, time, shift & date of collection.
- Keep the swab bottles refrigerated until analysis.

TESTING & REPORTING:

- 1 ml samples were tested for standard plate count & coliform as per the respective test procedures.
- Count the number of colonies in the plates and report the results as CFU/ cm^2 for SPC and Present or Absent for Coliform.

MONITORING THE AIR COUNT BY SETTLE PLATE METHOD

SCOPE:

To monitor the air quality by settle plate method.

PRINCIPLE:

Settle plate sampling is a direct method of assessing the likely number of microorganisms depositing onto the product or surface in a given time. It is based on the fact that, in the absence of any kind of influence, airborne microorganisms, typically attached to larger particles, will deposit onto open culture plates. Microorganisms are usually found in the air of food processing environment. The average size of microbial particle will deposit, by gravity, onto surfaces at a rate of approximately 1 cm/s. In settle plate sampling Petri dishes containing agar medium are opened and exposed for a given period of time, thus allowing microbe-bearing particles to deposit onto them. Petri dishes which are 90 mm in diameter (approximate internal area 64 cm2) are used. The number of microbe bearing particles deposited onto the agar surface of the plate over the period of exposure is ascertained by incubation of the plate and counting the number of microbial colonies, more commonly known as colony forming units (cfu). The microbial deposition rate may be reported as the number depositing in a given area per unit time.

MATERIALS REQUIRED:

- Sterile Plate Count Agar Plates (PCA)
- Sterile Chloramphenicol Yeast Glucose Agar Plates(CYGA)

PROCEDURE:

- Use PCA for standard plate count and CYGA for yeast & mould count.
- Examine the plates for contamination prior to use.
- Take the required number of plates,mark appropriately, wrap in aluminium foil, And take into the respective area in the sample box.
- Place the plates in the appropriate positions with the lids still on.
- Raise lids to expose the surface of the medium, rest the lid on the very edge of the plate so that the entire agar surface is completely exposed. Take care not to put fingers on plates. Avoid passing anything over the top of plates being exposed, where possible.
- Leave plates exposed for 15 minutes.
- After exposure replace lids of the plate.
- Incubate the PCA plates at 37ºC for 48 hrs and CYGA at 25ºC for 5 days.

COUNTING OF COLONIES AND EXPRESSION OF RESULT:

After incubation count the number of colonies on each plate using a colony counter and report the result as CFU/15 min.