Assessment of fish quality

Sanitaion standard operating procedures (SSOP)

SSOPs are sanitation control procedures which are necessary for the production of quality food. Sanitation control procedures established and implemented by the the processing industries should involve documentation of sanitary progeramme in the form of SSOP. This contains details of in-plant procedures to be followed by a food processing firm to control, monitor and correct the key sanitation conditions and practices.
The objectives of SSOP are to,

- Describe the sanitary procedures to be used in a food processing facility.
- Provide the schedule for the sanitation procedures.
- Provide a training tool for employees.
- Identify trends and prevent re-occurring problems.
- Ensure understanding of acceptable sanitation practices by everyone involved from management to production workers.
- Provide a foundation to support a routine monitoring program.
- Encourage prior planning to implement corrections when necessary.
- Demonstrate commitment to buyers and inspectors.
- Establish improved sanitary practices and conditions in the plant.

Implementation of SSOP

The processing facilities should implement SSOP to ensure quality of food being processed. The SSOP developed should be specific to each processing unit and describe procedures associated with sanitary handling of food, cleanliness of the plant environment, and activities conducted to meet them.

Types of SSOP

The SSOP developed by the food processinf facility can be of twotypes,

- Informal SSOP
- Formal SSOP.

Informal SSOP outlines the frequency and procedures to be followed to control, monitor and correct deficiencies for a specific task/sanitation. And the formal SSOP is a written document in a standard format containing standard information for implementation of SSOP at each stage.

Requirements of SSOP

Irrspective of the type of SSOP developed by a processing unit, it should meet two important

requirements.

- It should provide enough detail for someone to carry out the task in question.
- The procedures used should accurately reflect the activities being conducted.

Good Manufacturing Practices (GMP)

Good manufacturing practices are mandatory operational procedures that are to be followed to ensure product of good quality. The regulatory agencies specify GMPs to be adopted in the manufacturing, processing, packing, transportation and storage of each type of food meant for human consumption. The regulations of GMPs may include sanitary aspects covering equipments and utensils, sanitary facilities and control, sanitary operations, processes and controls, and personnel.

Hazard Analysis and Critical Control Points (HACCP)

The foods preserved for human consumption should be free from infectious organisms. Application of good manufacturing practices often fails to ensure zero tolerance required for many pathogenic microorganisms. The classical approach to microbiological quality control has relied heavily on determination of microbiological parameter of both raw material and product. This requires too long time for getting results, offers no control over the process and often foods fail to meet quality standards. Thus, there is a need for fool proof approaches to ensure production of safe products. The newer approach for ensuring product quality is through the adoption of HACCP concept as a method of choice for ensuring the safety of foods from farm to table.

What is HACCP?

HACCP is a statement of prevention system of controls based on hazard analysis and critical control point. HACCP involves application of more systematic rule based approach for ensuring production of microbiologically safe food.

Hazard analysis

Hazard analysis involves identification of ingredients and products which might have pronounced effect on food safety. Hazards include any biological, chemical and physical property that might cause unacceptable consumer health risk due to contaminants, toxins, microorganisms etc.

HACCP was originally developed by Pillsbury Company to produce zero defect food for astronauts of NASA in USA. Since 1973, it has been adopted in food industry to produce quality food by identifying stages of hazards and applying control points to reduce /eliminate hazards. HACCP has been recommended by Codex Alimentarius and has become international reference system for food safety assurance.

Critical control point (CCP)

Any point or procedure in a food processing system where control can be exercised and hazard can be minimized or prevented. Therefore, loss of control over processing parameters would result in unacceptable risk to consumers.

Principles of HACCP

HACCP as a natural and systematic approach to food safety is based on seven basic principles. These include,

- Conducting hazard analysis.
- Determining critical control points.
- Establishing critical limit.
- Establishing monitoring procedures.
- Establishing corrective actions.
- Establishing verification procedures.
- Establishing record keeping and documentation procedures.

Conducting hazard analysis

This involves assessing hazards and risks associated with growing, harvesting, raw material, ingredients, processing, distribution, marketing, preparation and consumption of food in question. It helps to determine hazard which could pose threat to the safety of those consuming the product. Hence, hazards must be controlled by production process.

Determining critical control points

CCPs are identified after hazards are analyzed. This involves identifying potential hazards and their occurrence in process line (where they occur), and measures to control them. CCP is defined as a location, step or procedure at which some degree of control can be exercised over a microbial hazard threby the hazard can be prevented, eliminated or reduced to acceptable levels. Loss of control at CCP would result in an unacceptable risk to the consumer or product.
Ex: Raw material as CCP – if it contains microbial hazard, subsequent processing will not guarantee its control. Procedures like cooking, chilling, freezing, cleaning, disinfection etc could be CCPs.

Establishing critical limits

A critical limit is one or more prescribed tolerances that must be met to ensure that a CCP effectively controls a microbiological hazard. The critical limits (with tolerance limits where appropriate) established should include parameters such as,
Physical parameters such as temperature, humidity, quantity of material in a package, can seam dimensions etc.

Chemical parameters such as pH in acidified foods, aw of IMF, salt concentration, available chlorine in cooling water for cans, level of preservatives etc.

Sensory information such as appearance, texture, odour etc.

Management factors such as correct labeling of product, instruction of handling and use etc.

Establishing monitoring procedures

Monitoring of CCPs involve the scheduled testing or observation of a CCP and its limits. This helps to confirm and record that the control is maintained on CCPs. But, only such parameters which are easy and quick to measure and results can be obtained immediately should be considered to monitor CCPs. Example: physical and chemical parameters such as temperature, time, pH, aw etc. Microbiological parameters are not generally suitable as long time is required to obtain results. Proper records should be kept on the performance of CCPs. This will help in process verification, analyse trends which could lead to loss of process control and to take easy remedial measures.

Establishing corrective actions

This involves establishing corrective actions whenever deviations occur in CCP monitoring. Actions taken must eliminate hazard created by deviation in plan/process. If product produced is unsafe due to deviation in process, such products should be removed. The actions taken variws widely depending on the product being processed, and action taken must bring the CCPs under control.

Establishing procedures for verification

This involves establishing procedures for verification that the HACCP system is working correctly. Verification consists of methods, procedures and tests used to determine that the system is in compliance with the plan. Verification confirms hazards in HACCP system whenever occurs. Verification measures include compliance with set established microbiological criteria. Verification activates generally include establishment of verification inspection schedule, review of HACCP plan, CCP records and deviations, random sample collection and analysis etc.

Establishing effective record keeping system

Establishing effective record keeping system is necessary to document the HACCP plan. The HACCP plan must be on file at the food establishment and made available to official inspectors. For recording and documentation, standard forms may be used with necessary modification. Record keeping should provide documentation for all raw material, ingredients, processing steps, packaging, storage and distribution.