

# CONCEPT OF HACCP

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# Introduction of HACCP

- The HACCP concept was advanced in 1971 by H.E. Bauman and other scientist at the Pillsbury company in collaboration with national aeronautics and space administration (NASA) and the U.S. Army research laboratories. It is now widely embraced by the food industries and by the government regularity agencies around the world as a most cost effective means of minimizing the occurrence of food born biological, chemical and physical hazards.

- The National Advisory Committee on Microbiological Criteria for Foods (Committee) reconvened a Hazard Analysis and Critical Control Point (HACCP) Working Group in 1995. The primary goal was to review the Committee's November 1992 HACCP document, comparing it to current HACCP guidance prepared by the Codex Committee on Food Hygiene. Based upon its review, the Committee made the HACCP

- principles more concise; revised and added definitions; included sections on prerequisite programs, education and training, and implementation and maintenance of the HACCP plan; revised and provided a more detailed explanation of the application of HACCP principles; and provided an additional decision tree for identifying critical control points (CCPs).

# Definitions:-

- Control Measure: Any action or activity that can be used to prevent, eliminate or reduce a significant hazard.
- Control Point: Any step at which biological, chemical, or physical factors can be controlled.
- Corrective Action: Procedures followed when a deviation occurs.

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- Criterion: A requirement on which a judgement or decision can be based.
- Critical Control Point: A step at which control can be applied and is essential to prevent or eliminate a food safety hazard or reduce it to an acceptable level

- . Critical Limit: A maximum and/or minimum value to which a biological, chemical or physical parameter must be controlled at a CCP to prevent, eliminate or reduce to an acceptable level the occurrence of a food safety hazard.
- Deviation: Failure to meet a critical limit.

- HACCP: A systematic approach to the identification, evaluation, and control of food safety hazards.
- HACCP Plan: The written document which is based upon the principles of HACCP and which delineates the procedures to be followed.
- HACCP System: The result of the implementation of the HACCP Plan:



- . HACCP Team: The group of people who are responsible for developing, implementing and maintaining the HACCP system.
- Hazard: A biological, chemical, or physical agent that is reasonably likely to cause illness or injury in the absence of its control.
- Hazard Analysis The process of collecting and evaluating information on hazards associated with the food under consideration to decide which are significant and must be addressed in the HACCP plan.

- Monitor: To conduct a planned sequence of observations or measurements to assess whether a CCP is under control and to produce an accurate record for future use in verification.
- Prerequisite Programs: Procedures, including Good Manufacturing Practices, that address operational conditions providing the foundation for the HACCP system.
- Severity: The seriousness of the effect(s) of a hazard.

- Step: A point, procedure, operation or stage in the food system from primary production to final consumption.
- Validation: That element of verification focused on collecting and evaluating scientific and technical information to determine if the HACCP plan, when properly implemented, will effectively control the hazards.
- Verification: Those activities, other than monitoring, that determine the validity of the HACCP plan and that the system is operating according to the plan.

# Principle 1. Conduct a hazard analysis

- Hazards are categorized into three general areas: biological, chemical, and physical. For the most part, biological, which includes pathogens, is the hazard that most plans are used to prevent.
- The challenge that faces the HACCP Team is to determine what are truly significant versus insignificant hazards. The Team must weigh both risk and severity when analyzing hazards.

## Principle 2. Identify the CCPs in the process.

- A Critical Control Point is defined as a point, step or procedure at which control can be applied and a food safety hazard can be prevented, eliminated, or reduced to acceptable levels. This differs from a Control Point, which is a less specific and important step in the process.
- The selection of CCPs is aided by the use of a CCP Decision Tree.

- This Decision Tree is designed to allow the Team to ask specific and logical questions to help determine what is truly a Critical Control Point versus a Control Point or something that could be handled under the GMPs (Good Manufacturing Practices) or SOPs (Standard Operating Practices). Although this Decision Tree is not perfect, it certainly helps to focus the attention of the team on what should be used in a HACCP Plan to control hazards.

## Principle 3. Establish critical limits

- Critical Limits are important tools that help the HACCP Plan function properly. Critical Limits serve as the boundaries for each CCP. Examples of Critical Limits are preventative measures such as temperature, pH, salt concentration, time, moisture level, etc.
- Critical Limits are different from factors that may affect quality. The flavor characteristics of a cooked meat product may be best achieved at a certain endpoint temperature, but the safety of the product may be achieved at another temperature

# Principle 4. Establish CCP monitoring requirements.

- CCP monitoring is a planned sequence of observations or measurements to assess whether a CCP is under control and to produce an accurate record for future use in verification. Monitoring is focused on keeping the process under control and preventing deviations (those occurrences outside the Critical Limits) from happening. If deviations do occur, monitoring will provide the information as to when problems occurred so that corrective action can be taken.



# Principle 5. Establish corrective action

- It must be assumed that deviations will occur, even in the best HACCP Plans. There are three areas that corrective action plans address: (a) to determine the disposition of non-compliance product, (b) to fix or correct the cause of noncompliance to assure that the CCP is under control, and (c) to maintain records of the corrective actions that have been taken where there has been a deviation from Critical Limits.

- All HACCP Principles are important, but this Principle answers the question of “what if” before it happens. It is not in the best interest of the company to leave the decision making process to those in the middle of the crisis. Plans must be in place to address what to do with the product under as many scenarios for violations of Critical Limits as possible.

## **Principle 6. Establish effective recordkeeping procedures**

- The approved HACCP Plan and associated records must be on file at the establishment. For the most part, this may be the only part of the HACCP Plan that will be audited or reviewed by customers or regulators. Adequate records of what is and was measured and what was done with products that were produced outside of Critical Limits are items that people look to see if the HACCP Plan is working.

## **Principle 7. Establish procedures for verification.**

- Verification is a process to look at the HACCP Plan as it is being carried out and at the long-term trends and implications. The HACCP Team must strive to continue to update and improve the HACCP Plan knowing that the Plan is a dynamic instrument that will grow and change as products and processes evolve and as new forms of hazards enter the food chain.

- This Principle deals with reviews of the Plan, both in how it is written and how it is being followed. Outside experts play an important role in giving input to the Team as to ways to improve the Plan. Verification is an on-going process that helps in ensure that the HACCP Plan is doing what it is supposed to do: prevent hazards from becoming a part of the food supply.

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**THANK YOU**