

HACCP Principle 2 – Identify Critical Control Points

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HACCP Principles

- Principle 2
 - Identify the **C**ritical **C**ontrol **P**oints (CCPs) in the process.
 - The “**Stop Sign**” of the process.



Definition

Critical Control Point

A point or 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.

Hazard Prevention

- Points may be identified as CCPs when hazards can be **prevented**
 - For some products and processes the following may be true:
 - Introduction of hazard can be prevented by control at receiving step (e.g. supplier declaration)
 - A chemical hazard can be prevented by control at ingredient addition or blending step

Hazard Prevention

- Points may be identified as CCPs when hazards can be **prevented**
 - Pathogen growth in the finished product can be prevented by control at formulation or ingredient addition step (e.g. pH adjustment or addition of preservatives)
 - Pathogen growth can be controlled by refrigerated storage or chilling

Hazard Elimination

- Points may be identified as CCPs (or oPRPs) when hazards can be **eliminated**
 - For some products and processes the following may be true:
 - Pathogens and parasites can be killed during heat treatment or UV light treatment
 - Metal fragments can be detected by a metal detector and eliminated by removing the contaminated product

Hazard Reduction

- Points may be identified as CCPs when hazards are **reduced to acceptable levels**
 - For some products and processes the following may be true:
 - Occurrence of foreign objects can be minimized by manual sorting and automatic collectors
 - Some chemical hazards such as patulin can be reduced by processes such as culling, brushing and washing apples prior to juice extraction

Assessment of Control Measures

- Identify control measures or combination of control measures capable of preventing, eliminating or reducing these food safety hazards to acceptable levels.
- Review each of the control measures with respect to its effectiveness against the identified food safety hazards.
- Categorize control measures as to whether they are managed by Prerequisite Programs, or need to be managed through the HACCP plan.

Critical Control Points

- There likely are several points in a food processing system where hazards can be controlled to some extent.
- There are likely to be only a few steps where loss of control will result in the production of a potentially unsafe food.
 - These steps are the CCPs in the HACCP Plan

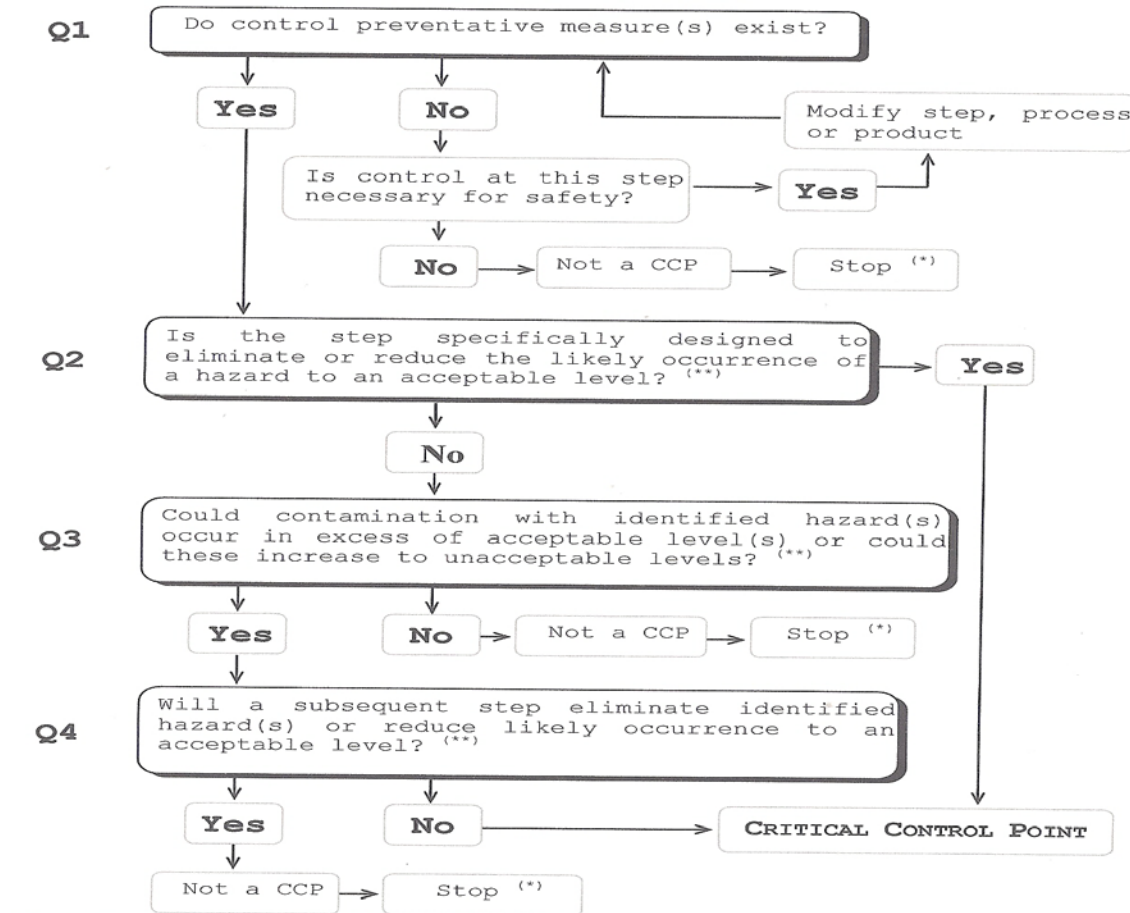
Determining CCPs

- CCP Decision Trees
 - The HACCP team should use the CCP Decision Tree to evaluate each of the steps where food safety hazards can be prevented, eliminated, or reduced to acceptable levels.
 - Each step should then be categorized as either a CCP, control point or neither

CCP Decision Trees - Example

DIAGRAM 2

EXAMPLE OF DECISION TREE TO IDENTIFY CCPs
(answer questions in sequence)



(*) Based on the most identified hazard(s) in the process.

Determining CCPs

- Do NOT use the CCP Decision Tree before completing the hazard analysis.
 - This may result in identifying CCPs that are not essential to controlling product safety
- Strictly following a CCP Decision Tree sometimes results in a decision that common sense says is incorrect.
 - Use decision trees with caution.

Multiple CCPs and Hazards

- A single hazard may require control by multiple CCPs
 - Example: Acidification and thermal processing of fruit purees to control *Clostridium botulinum* growth and toxin formation.
- Multiple hazards may be controlled by a single CCP
 - Example: Vegetative pathogenic bacteria and parasites in apple juice can be controlled by the same thermal process.

CCPs are Product- and Process-Specific

- CCPs may change with differences in:
 - Facility layout
 - Formulation
 - Process flow
 - Equipment
 - Ingredient selection
 - Sanitation and other prerequisite programs

Critical Control Points

- Points of absolute control
- Steps in the food process which must be under control to produce a safe product
- CCPs are an intervention used when the hazard has a high probability of existing and the risk level to the consumer is high.

ISO 22000 Food Safety Schemes

- Also include the concept of Operational Prerequisite Programs (oPRPs)
 - A prerequisite program identified by the hazard analysis as essential in order to control the likelihood of introducing food safety hazards to and/or the contamination or proliferation of food safety hazards in the product(s) or in the processing environment.

Prerequisite Programs

- The **generic** controls in any type of food operation.
- Applied in all types of food operations so as to maintain a **hygienic environment** to reduce the food safety risk.
- They are in operation at **all times**.
- They are the **foundation** of HACCP.
- They can have an effect on end product safety if not included in the food safety management system.
- They are **NOT** specific to one step in the process and **DO NOT CONTROL** a specific hazard.

Operational Prerequisite Programs

- oPRP are **specific** to a food operation and are determined after doing the hazard analysis.
- oPRP are **essential** because the hazard analysis has shown that they are **necessary** to control **specific** food safety hazards.
- oPRP may not target a specific source of the hazard.
- oPRPs are used to **reduce the likelihood** that products and/or processing environment will be exposed to hazards or will be contaminated and that hazards will proliferate.

What Differentiates an **OPRP** from a **PRP**?

- **PRPs** are horizontal
- **PRPs** may contribute to reduction of the hazard but may not be essential for control
- **OPRPs** apply to a specific identified hazard
- **OPRPs** apply to a specific product or process
- **OPRPs** are essential to reduce the level of the hazard
- Example: General cleaning and sanitation (PRP) versus cleaning of a particular point in the line to prevent allergen cross-contamination (OPRP)

What Differentiates an **OPRP** from a **CCP**?

- **CCPs** are process steps where control measures are applied that have “absolute” control over the hazard
- **OPRPs** are control measures essential for the control of the hazard, but do not have “absolute” control over the hazard.
- **OPRPs** may work in combination with other control measures to prevent, eliminate, reduce or maintain a hazard to an acceptable level
 - Their failure does not automatically imply that a product is hazardous.

Designating CCPs

- Methods for identifying or designating CCPs in HACCP plans can vary:
 - Sequential numbering
 - CCP #1, CCP #2, CCP #3
 - Sequentially within hazard category
 - CCP P1, CCP B1, CCP C1
 - By process step name
 - Oven, Packaging, Chill

Number of CCPs in a Plan

- Depends on the product and process.
- Too few CCPs may not allow for adequate control of food safety hazards.
- Too many CCPs may over burden the HACCP plan.
 - It is more common for establishments to designate too many CCPs than too few.
 - If everything is significant, then **NOTHING** is significant.

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