HACCP – Introduction and Preliminary Steps

FSKN I 15A

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GFSI Intermediate Requirement

- The company shall perform a hazard analysis of their product manufacturing process as a minimum step in order to determine if there are any hazards associated with the production of their products.
- The company shall use the HACCP [Hazard Analysis Critical Control Point] tool to accomplish this assessment.
- If hazards are identified the company shall develop a HACCP plan that meets the 7 principles reflected within Codex Alimentarius.
- The HACCP plan shall be effectively implemented.

Definition of HACCP

- **H**azard **A**nalysis and **C**ritical **C**ontrol **P**oints
  - A systematic approach to the identification, evaluation, and control of food safety hazards.
- HACCP provides the framework to produce foods safely and to prove they were produced safely.

HACCP

- Specifically focuses on food safety, not all attributes constituting food quality
- Applicable to all phases of food production
- Focus is on prevention and control of potential food safety hazards rather than inspection
- Use of science and technology to ensure the production of safe food

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HACCP and Traditional Quality Control Methods

End-product testing is ineffective and leads to false confidence in food safety

For example:

- 1 pack in every 1000 packs produced is contaminated with Salmonella
- If the laboratory tested 60 samples
- The probability of acceptance is statistically <94% (all samples test negative for salmonella)

Origins of HACCP

- W.E. Deming - 1950s
  - Developed total quality management systems
  - Emphasized a systems approach to manufacturing
- Pillsbury Company, US Army, NASA - 1960s
  - "Zero Defects" program for space flights
  - Emphasis on process control as opposed to end-product testing

Food Safety Hazard

A biological, chemical or physical agent in, or condition of, food with the potential to cause an adverse health effect.

Classes of Food Safety Hazards

Biological

- Bacterial Pathogens
- Parasites
- Viruses

Classes of Food Safety Hazards

Chemical

- Natural Toxins

  (Scombrotoxin/Histamine)
- Allergens
- Heavy Metals (e.g. Mercury, Cadmium)
- Drugs (e.g. used in aquaculture or animal husbandry)
- Insecticides, Fungicides, etc.

Classes of Food Safety Hazards

Physical

- Metal
- Glass
- Hard or sharp foreign objects

Prerequisite Program

- Before the HACCP Plan is developed a company must be operating in accordance good hygiene and good manufacturing practice (prerequisites)
- Without appropriate day-to-day control of potential hazards arising from poor practices, despite a HACCP plan being in place the safety of the food is at risk
- Basic and Intermediate requirements focus on these prerequisite programs

Prerequisite Programs Include

- Management commitment
- Supplier approval
- Building and equipment design, fabrication and maintenance
- Production line design and product flow
- Cleaning and disinfection programs
- Equipment calibration
- Water quality
- Staff hygiene practices
- Staff training
- Staff health
- Pest control
- Waste control
- Specifications
- Product recall

Codex HACCP

HACCP-Getting Started

1. Assemble the HACCP Team
2. Define the scope of the HACCP Plan
3. Describe the Food and its Distribution
4. Describe the Intended Use and Consumers of the Food
5. Develop a Flow Diagram Which Describes the Process
6. Verify the Flow Diagram

7 Codex HACCP Principles

1. Conduct a hazard analysis
2. Determine the CCPs
3. Establish critical limits
4. Establish monitoring procedures
5. Establish corrective actions
6. Establish verification procedures
7. Establish record keeping and documentation

Assemble the Food Safety Team

- Food Safety Team Leader
  - Should have overall responsibility for the development, organization, and management of the HACCP program
- Food Safety Team
  - A multidisciplinary team, proportionate to the size of the business
  - Skills and expertise in a wide variety of technical disciplines relative to the products produced
  - HACCP expertise is not essential for all team members
  - Records shall be maintained that demonstrate that the food safety team has the required knowledge and experience.

Example – Food Safety Team in a Large Facility

- Plant manager
- Food Safety manager
- QC manager
- Production floor manager
- Maintenance and sanitation manager

The HACCP Team in a small processing facility may consist of the owner/operator and other family members.

Preliminary Steps – General Objective

- All relevant information needed to conduct the hazard analysis shall be collected, maintained, updated and documented.
- Records shall be maintained.

Considerations in Relation to Product

- Suppliers
- Ingredient specifications
- Batches of ingredients
- Formulation
- Product specifications
- Facility and layout
- Types of equipment
- Equipment design
- Preparation procedures
- Processing parameters
- Employee practices
- Packaging materials
- Storage and warehousing
- Distribution
- Retail handling and display
- Product shelf-life
- Label instructions
- Operating conditions

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Product Characteristics

You must describe:

- All raw materials, ingredients and product-contact materials
- The characteristics of end products
  - The descriptions are documented
  - Detail sufficient to conduct the hazard analysis

Raw Materials, Ingredients and Product-Contact Materials

- Biological, chemical and physical characteristics
- Ingredient composition, including additives
- Origin
- Method of production
- Packaging and delivery methods
- Storage conditions and shelf life
- Preparation and/or handling before use or processing
- Food safety-related acceptance criteria or specifications of purchased materials and ingredients

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Characteristics of End Products

- Product name or similar identification
- Composition
- Biological, chemical and physical characteristics relevant for food safety
- Intended shelf life and storage conditions
- Packaging
- Labeling relating to food safety and/or instructions for handling, preparation and usage
- Methods of distribution

Describe the Intended Use and Consumers of the Food

- What is the intended use?
  - Retail, food service, further processing
- What is the potential for mishandling?
- What handling and preparation procedures are required of the end users?
  - Ready-to-eat, heat and serve, cook
- Who are the intended consumers of the product?
- Is the product intended for use by immune compromised individuals or other susceptible groups?

Vulnerable Groups

Elderly People

Babies and Young children

Pregnant women

Sick people

Allergen sufferers

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Flow Diagrams

- Must be prepared for the products or process categories covered by the food safety management system.
- Provide a basis for evaluating the possible occurrence, increase or introduction of food safety hazards.
- Must be clear, accurate and sufficiently detailed.

Flow Diagrams Should Include

- The sequence and interaction of all steps in the operation
- Any outsourced processes and subcontracted work
- Where raw materials, ingredients and intermediate products enter the flow
- Where reworking and recycling take place
- Where end products, intermediate products, by-products and waste are released or removed.

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Flow Diagram Components (Example)

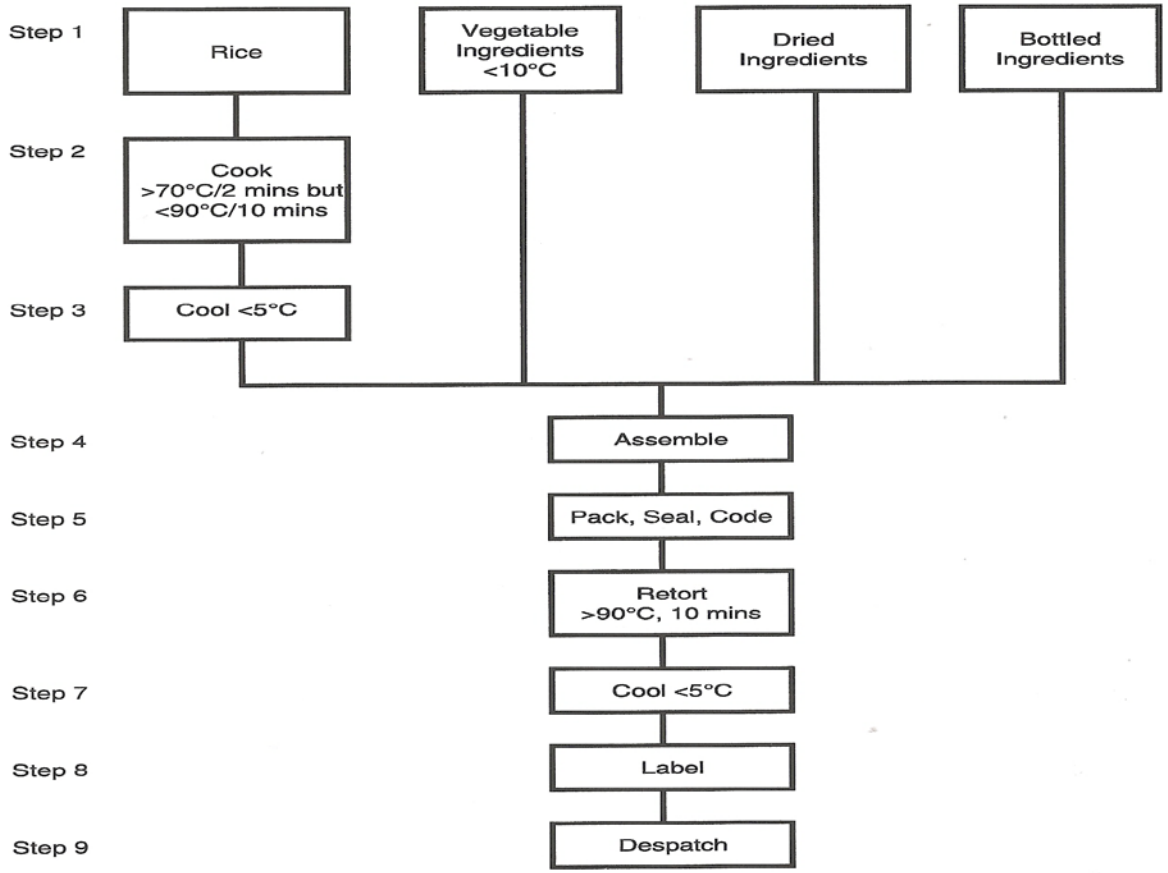
- Ingredients
- Storage
- Preparation
- Processing
- Packaging
- Product Storage
- Distribution
- Locations
- Steps
- Machinery

Example of a Flow Diagram

PRODUCT: Post-pack Retorted Rice Salad

CATEGORY OF FOOD: Chilled Cooked Product to be Eaten Without Further Reheating

SUMMARY/PROCESS FLOW:



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Verify the Flow Diagram

- Check for accuracy and completeness of the flow diagram
- On-site inspection of the facility, equipment and operations
- Identify deficiencies
- Correct the document
- Verified flow diagrams shall be maintained as records

Update the Flow Diagram as Necessary

HACCP plans must be updated to reflect any changes in process or food safety considerations

A product flow diagram is:

- Dynamic
- Updated and modified to accurately reflect the current process/operation

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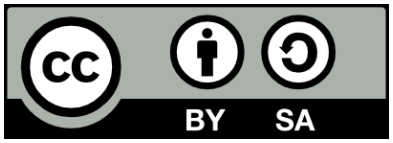

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