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HACCP (Hazard analysis & critical control point)

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Abstract

HACCP (Hazard Analysis & Critical Control Point) is the systematic preventative approach to food safety. It addresses physical, chemical and biological hazards as a means of prevention rather than finished product inspection. It is a systematic preventative approach for food safety from biological, chemical and physical hazards in production process. The HACCP system can be used at all stages of a food chain, from food production and preparation processes including packaging, distribution etc. HACCP has been applied to industries other than food such as cosmetics and pharmaceuticals. HACCP is focused only on health safety issues of a product, but not the quality of product, yet HACCP principles are the basis of most food quality and safety assurance systems and the United States, HACCP compliance is regulated by 21 CFR parts 120 and 123. Similarly, FAO/WHO published a guideline for all governments to handle the issue in small and less developed food businesses.

Keywords: Hazard analysis, critical control point

Introduction

Benefits of HACCP

In recent year, the food safety planes based on HACCP is internationally known and accepted as a tool for enhancing food safety. The World health organization (WHO) and Codex Alimentarius Commission (CAC) recognized HACCP as one of the plan or system to ensure the food safety. Although the main aim of HACCP is food protection that means it focuses on identifying and preventing hazards from contaminating food, which leads to many benefits like increasing in consumer volume and their confidence, maintaining and increasing in marketing access, improving control of production process which leads to reduction in cost through reduction of production losses and rework, increasing in focus and ownership of food safety, business liability protection, improving product quality and its consistency, permitting more efficient and effective government oversight or simplification in inspections primarily because of the recordkeeping and documentation, alignment with other management system (ISO 22000), places responsibility for ensuring food safety appropriately on the food manufacturer or distributor. It reduced the barrier to international trade. It helps food companies to compete more effectively in the world. The traditional food management plans are reactive to food hazard. However the HACCP applies a preventive approach to minimize food hazards. In recent year, the food safety planes based on HACCP is internationally known and accepted as a tool for enhancing food safety. In food industry they measure main product and package quality attributes by focusing on ingredients and materials and regulating manufacturing, bottling and distributions of product to ensure those products meet company requirements and consumer expectations in the market place. The Company expands beverage portfolio and supplier system to match up with the increasing demands of growing and developing markets all around the world. This leads to the increase in customers and their expectations. This global nature requires that the Company has the highest standards and system to ensure consistent quality-from raw material to the finishing product, from empty bottles to the full packaged product. To ensure such reliability, the system is governed by, a new management system, which supports company's strategic growth plan by creating an integrated quality management program which holds all the operations. It integrates business and quality objectives by aligning them with consistent metrics to monitor performance; incorporates Hazard Analysis and Critical Control Point (HACCP) into our system standards, managing risk regarding all issues.

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Analysis hazards

Before understanding the principle of HACCP, We must understand about hazard. "Any biological or chemical agent foreign matter or substance not intentionally added to food which may compromise food safety or suitability." Hazard can be biological like bacteria, chemical like preservatives and physical means impurities like glass pieces. All these hazards should be undertaken according to HACCP principles. (CAC/RCP 33-1985) These hazards can cause a food to be unsafe for human consumption. Here we analysis the type of hazard and its occurrence (raw material and processing steps) and to assess potential to render food unsafe for consumption. Here we must prepare a process flow diagram of the steps in the process and list out all possible hazards.

Determine the Critical Control Point

A Critical Control Point is a procedure in food manufacture process at which control can be applied to that particular hazards lead to the safety of the food. It is not detect hazard, but goes for prevention from that hazard. A logical decision. Making process is applied to determine whether (or) not the process is a critical control point. It indicates few factors such as whether that control in a particular step is necessary-hether that control at this step eliminates (or) reduces the occurrence of the hazard to an acceptance level.-whether the contamination occurs by the hazard could occur in excess of acceptable level.

Establish limits for critical control points

The limits of critical control point are criteria which separates acceptability from unacceptability. It is a value (max/min) of the hazard which can be biological, chemical or physical must be controlled at a critical control point to prevent, eliminate (or) reduce to an acceptable level the occurrence of the identified food safety hazard. The examples of limits of critical control points are time, temperature, humidity, water activity and pH value. In some cases, more than one critical limit is needed to control a particular hazard.

Establish monitoring procedure for CCP

It is a planned sequence of observation (or) measurements to assess whether a critical control point is under control and to produce an accurate record for future use in verification. Monitoring help the plant by warning if there is a change towards loss of control. So that we can take action to bring the process back into control before the limit is exceeded.

Establish corrective actions

The action we take after the results we obtain from monitoring at the critical control point indicate that the limit is exceeded is called corrective actions i.e., a loss of control. It is an advanced plan for safety by the management. If the critical control point fails to remove that hazard, then this plan helps to manage and eliminates the hazard. When the limit crosses the critical control point, the plant needs to take corrective action immediately. The persons handling (or) dealing with monitoring the critical control point, should be trained to prefer the appropriate corrective actions.

Establish verification procedures

Verification is a procedure which indicates, tests, methods, additions to monitoring and other evaluations to determine compliance with the HACCP plan

Establish a record system

Preparing and maintaining a HACCP records is very important part of the HACCP system. Maintaining a record is helpful for tracing the history of an ingredient in process operations, or a finished product, when problem arise in future. It is helpful for identifying and narrowing a product recall operation that could result in a deviation is not corrected. To create and maintain a record keeping procedure, all points must be noted up to date. Employees must ensure that they understand their roles and responsibilities.

Hazard Analysis Critical Control Point of Water Treatment Plant

Hazard analysis critical control points are in its inception stage for the water industry but have provided controls for the safety of foods for over three decades. It is the primary risk management system for the food industry. In recent years development countries with conventional water treatment system have still experienced water borne-disease outbreaks. The UK Department of environment, Transport and the regions (1998) reported on 23 corner outbreaks of Cryptosporidiosis associated with consumption of public drinking water supplies in the UK since 1988. Scientifically based, process oriented management systems such as HACCP. The intentions of HACCP system is to focus on preventing or controlling hazards early in the process rather than relying mainly on end-point testing for quality control. The HACCP guidelines "Codex Alimentarius" (FAQ/WHO 1996), meaning food code, detail 5 prelim 5 preliminary steps and seven principles for implementing HACCP. The preliminary steps are to assemble a HACCP team, describe the product, identify its intended use, construct a flow diagram and confirm the flow diagram on-site. The seven principles are:

- Conduct a hazard analysis
- Determine the CCPs
- Establish critical limits
- Establish a system to monitor control of the CCP
- Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control.
- Establish procedure for verification to confirm that the HACCP system is working effectively.
- Establish documentation concerning all procedures and records appropriate to these principles and their application

Conclusion

The application of HACCP within as organisation needs to be well supported by management and system. The support by the management is necessary because the HACCP system must be continually updated whenever there are changes in the raw products, equipment design, operations or scientific knowledge on hazards. Quality management systems in accordance with the international standard ISO 9001 are important supports to HACCP. In spite of the fact that HACCP is well established within the food industry, there are some important differences in the water industry which need to be considered. The most obvious are:

- The diverse range of possible water borne hazards, particularly from multi use catchments.
- The continuous nature of supply between raw water sources and consumption.
- Treatment facilities that are often monitored and operated remotely via telemetry, and

- The large, complex distribution networks The HACCP guidelines states it is important when applying HACCP to be flexible where appropriate, given the context of the application taking into account the nature and the size of the operations. The raw water from any source always having a characteristic pollution pattern and the treatment must be related to the source water quality. A conventional water treatment plant consists of coagulation, flocculation, sand filtration, carbon filtration, lead-lag filtration and micron filtration. Ludhiana beverages are having ground water as source water. As compare to other source water, ground water is having less number of pollutants because of less change of mixing of contamination from outside or external source. Conduct a hazard analysis

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