

# Food safety management system certification - the organization's commitment to control food safety hazards

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## Abstract

Food products are an important source of food for consumers around the world, and obtaining safe food products is an essential requirement. Economic operators in the food industry have conformed to the requirements of the legislation imposed by the EU, to ensure and send to the market safe products for consumers, taking into account the supply chain. At the national and international levels, the bodies that are involved directly or indirectly in the food chain must offer the market, but also the consumer, safe products according to their needs and expectations. Regarding the consumption economy and the quality and safety of food products, multinationals have approached new values regarding them. Precisely to achieve this, a series of standards were introduced at the EU level that organizations must comply with to design, implement, and certify management systems that refer to food safety to bring benefits to all parties involved.

**Keywords:** Certification, food safety, ISO, HACCP, hygiene.

## 1. Introduction

Food safety standards and systems include almost all types of activities and focus on their design, development, and implementation until obtaining a food product, on regulations regarding the quality of raw materials, assemblies, products, components, and services that are focused on the technological flow of obtaining the products. In addition to the production side, special emphasis will also be placed on insects and control. According to ISO standards, the main objective pursued by the certification bodies is to guarantee the conformity of a product, service, process, or the organization's quality system "with a predetermined reference".

By the definition of the ISO standard, it is understood that several types of certifications can be obtained for products and management services or other activities that have a common connection with it. The role of these organizations is to continuously improve the quality of products and services offered to consumers. Through such services, ensuring their quality and production will lead to obtaining new certifications.

The role of certifications is to monitor the way a business is conducted by EU legislation, and the importance of these certifications cannot be disputed. Unit certifications cannot do anything other than support organizations that strictly apply the rules of the standard in food industry units. The certification of a management system, carried out by competent bodies, is carried out through qualitative and superior processes compared to competitors, and they also can continuously improve standards to meet the satisfaction requirements of clients or final consumers (Militaru et al., 2014).

## **2. Methods**

ISO 22 000 is one of the organizations that deal with the certification of units placing access to the food supply chain. The requirements of this standard can be easily applied to the requirements of other standards and management systems, and by completing the information, a unit with a food profile can be certified.

The BRC standard is one of the most complex standards, because it covers a large part of the food safety field, starting from production and ending with the final product that reaches the market and finally the final consumer. This standard, in addition to the legislative part, emphasizes the HACCP part and good hygiene practices. The purpose of implementing these standards is to provide clients and consumers with confidence in food products. Before being applied, each standard is developed by the commission and the members of the BRC and periodically reviewed at three-year intervals to be consistent with the changes that occur periodically at the legislative level.

The IFS standard is a standard recognized by GFIS and focuses specifically on the safety and quality of food, taking into account first of all the technological process of obtaining and the type of products offered by food operators or manufacturers. This standard is applied in food processing units and in units where processed goods are packaged.

Safe Quality (SQF) is a management system adopted by those in Australia who have responded positively to EU food safety initiatives and this system focuses specifically on the entire food production chain. SQF focuses specifically on product quality and improving production strategies. Through it, good hygiene practices (GMP) and procedures based on PCC identification and risk analysis based on HACCP principles can be easily implemented.

## **2. Results**

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The European Union (EU) aims to ensure the hygiene of food products at all stages of the production process, from farms to processing plants, to retailers, and to the final consumer. Article 4 of Regulation (EC) no. 853/2004 requires food sector operators (OSA) to comply with the general sanitary requirements set out in detail in Annex I in the case of primary production and related activities, as well as in Annex II in the case of other stages of the food production chain. They are supplemented by specific hygiene rules that apply to food of animal origin, provided for in Regulation (EC) no. 853/2004. Article 5 of Regulation (EC) no. 853/2004 requires operators in the food sector to develop, apply, and permanently use one or more procedures based on HACCP principles. The principles of HACCP are generally considered and internationally recognized as a useful self-control system used by food business operators to control risks that may arise with respect to food.

## **4. Discussion**

Stakeholders pointed out that in practice there is often a gap between BPI and CCP in addressing intermediate risks and certain significant risks and concepts such as attention points, control points, etc. were introduced. Codex and ISO 22000 have taken two different approaches to managing these risks:

- The "General Principles of Food Hygiene" stipulated in Codex Alimentarius, CXC 1-1969, refer to "BPI requiring increased attention" to address identified significant risks. Thus, for some BPIs, based on food safety concerns, providing safe food may require "extra care". Increased attention may include greater frequency of enforcement, monitoring, and verification.

- ISO 22000 was introduced into pre-operational programs (PRPOs) in 2005 to fill this gap. They are control measures that are put in place to prevent a significant risk to food safety or to reduce it to an acceptable level. Measures are identified during the risk analysis as important to control certain significant risks.

Typical examples of BPI and/or PRPO include:

- cleaning of equipment and surfaces that come into contact with ready-to-eat food – these should be given more attention than other surfaces, such as cleaning walls and ceilings because if food contact surfaces are not properly cleaned, this could lead to direct contamination of food with *Listeria monocytogenes*;
- more intensive cleaning and disinfection and more rigorous personal hygiene (e.g. mouth protection masks and additional staff protection) in high-risk areas, for example in ready-to-eat packaging areas;
- checking the packaging of food cans from the point of view of cleanliness and defects; a more rigorous check on arrival when receiving raw materials, if the supplier does not guarantee the desired quality/safety level (for example, mycotoxins in spices);
- effective intermediate cleaning to control cross-contamination between production batches containing various allergens (nuts, soy, milk, etc.). The severity of the health effect is high and the risk of deviation (presence through cross-contamination) could be substantial, but real-time monitoring is impossible;
- considering the bacteriological quality of irrigation water as control points might be appropriate, especially for ready-to-eat crops;
- control of the vegetable washing process (for example, the frequency of washing water renewal to avoid microbial cross-contamination, mechanical action in the water to remove physical hazards such as stones or pieces of wood);
- control of the bleaching process for quick-frozen products (time/temperature); washing and bleaching processes may generally not be considered CCP because neither complete elimination nor reduction to an acceptable level of significant microbiological risks can be achieved or aimed at; however, they will influence the microbial load of processed products and, when associated with other control measures, will help to eliminate significant risks or reduce them to an acceptable level;

In the EU, risk analysis plays a fundamental role, being considered essential to identify different levels of risks, for example, whether BPIs are sufficient or whether intermediate risks

and/or risks of significant hazards need to be addressed through PRPOs and/or respectively of the PCC. As BPI requiring increased attention are not necessarily identified by the risk analysis in the Codex General Principles of Food Hygiene, but PRPO is listed in ISO 22000, reference is made to PRPO in this document.

Due to the lack of coordination between Codex and ISO 22000, it was necessary, in the context of the guidance provided in this document, to make this choice to avoid confusion on the part of operators between the two different approaches or due to unnecessary separation of two types of similar risks. However, the guidelines set out in this document are considered to be by both international standards, which can additionally be used as source material for the implementation of the SMSA. Codex Alimentarius is recognized as the official reference in the context of world trade.

Before applying HACCP-based procedures to any establishment, the food business operator must have implemented PRP, including BPI and the other measures provided for in Regulation (EC) no. 178/2002. These are the prevention and preparedness pillars of each SMSA and are necessary to develop HACCP-based procedures, representing a systematic control by the OSA of significant, specific risks that are not sufficiently controlled by the PRP alone.

A two-step approach (PRP/CCP is the minimum legal requirement, but it may be recommended to use the three-step approach to identify PRP, PRPO, and CCP. Many businesses could apply a two-step approach, while the three-step approach it may be more suitable for larger and more complex enterprises.

National and EU guidelines provide useful advice on how to implement GMP and HACCP-based procedures. They can be integrated, but do not replace OSA-specific risk analysis.

Several European sector-level stakeholder organizations have developed EU guidelines for good hygiene practices. The list of these guidelines can be consulted at: [https://ec.europa.eu/food/food/biological-safety/food-hygiene/guidance-platform\\_en](https://ec.europa.eu/food/food/biological-safety/food-hygiene/guidance-platform_en). In some cases, the European Commission itself has provided sector-specific guidance, particularly where OSAs are often small businesses:

- Commission Communication establishing guidelines on food safety management systems for food retailing activities, including food donation ("Commission Communication on Retailing Activities").
- Communication from the Commission regarding the orientation document regarding the approach at the level of primary production to the microbiological risks presented by fresh fruits and vegetables through the application of hygiene rules.

On the other hand, Hazard Analysis and Critical Control Points (HACCP), which underpins food safety programs, presents a systematic approach to identifying, evaluating, and controlling food safety hazards based on the following seven principles:

- A risk analysis should be carried out
- Critical control points should be identified
- Critical limits should be established
- Monitoring procedures should be established
- Corrective actions should be established
- Verification procedures should be prepared
- Record-keeping and documentation procedures should be established

These basic principles of food safety apply to all stages of the food industry, from cultivation, harvesting, processing, production, distribution, and sale to consumption.

Thus, the Codex Alimentarius Commission developed a series of standards for the food industry, trying to cover the entire sector. The list of Codex Alimentarius standards is too extensive to be presented in this article. It can be accessed on the web page [www.codexalimentarius.com](http://www.codexalimentarius.com). Codex Alimentarius standards on hygiene include the following:

- any sector of the food industry must operate and implement the Codex Alimentarius General Principles of Food Hygiene before developing and implementing the HACCP system;
- management commitment is essential for the implementation of a HACCP system;
- there may be situations in which it is necessary to redesign an operation or a process if a hazard that requires control but is not considered a CCP has been identified;
- any stage must be included in the HACCP plan and revised, if necessary;
- the implementation of the HACCP system requires flexibility, if all circumstances are taken into account

### **3. Conclusions**

- Organizations in the food field must consider the standards used in this field and come up with relevant supplements for the final consumer who plays an important role in consuming food products.

- The quality and safety management system of food products covers all types of activities, starting from the location of the unit, technological flow, and the quality of raw and auxiliary materials until obtaining a product free of dangers for the final consumer, thus emphasizing the improvement standards, inspections, and control organized by competent institutions or bodies.
- The certification of management systems is of major importance, offering competent certification organizations the possibility to implement their stages based on the principles of the respective standards.
- Regardless of the type of standard chosen by food organizations, they must emphasize senior management's commitment to food safety and intervene in correcting processes to meet customer requirements.

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