Food Safety Compliance training

HACCP

With our Food Safety Compliance for QA managers training we go back to the basics, the foundation to properly fulfill the complex function of a QA manager, now and in the future.

Introduction

1. **Food Safety Compliance**
2. HACCP introduction
3. Methodology
    - Prerequisite program
    - Control measures
4. HACCP study: specific hazards
5. HACCP study: decision tree, raw materials and processes
6. Cornelis Bartlema Food Group: HACCP

Food Safety Compliance

In which field do we operate?

Objectives for Food Management:

Brand protection

- Legal compliance (license to operate)
- Quality standard compliance (license to sell)
- Peace of mind (license to relax)

Quality

- Real-time Food Quality Assurance
- Building Food Quality history
- Improving in-house Food Quality capabilities

Efficiency

- Opportunities for integral cost-saving
- Flexibility: Organised for Food Quality dynamics

Effectiveness

Real-time management of:

- Specifications
- Quality activity
- Traceability
- Assessment

Quality Standards

QUALITY STANDARDS

EFQM	SQF	HACCP
INK	Eurepgap	BRC
ISO9001:2000	GMP Animal Feed	IFS
ISO17025	AIB	EFSIS

ACCREDITATIONAL BODIES

CERTIFICATIONAL BODIES

CUSTOMERS

- Retail Organisations
- Food Service
- Wholesalers and Trade
- Food Manufacturers
- Out of Home Outlets
- Hospitals

CONSUMERS

- Habits, Attitudes
- Preferences
- Allergens
- Quality Needs
- Information Needs

FOOD AND DRINK FACTORY

FOOD & DRINK MANAGEMENT

LABORATORIES

- Microbiological
- Analytical

PRODUCT SUPPLIERS

- Raw materials
- Equipment
- Packaging
- Machines

SERVICE SUPPLIERS

- Cleaning and Hygiene
- Pest Control
- Measurements
- Cooling Systems

GOVERNMENT CONTROL BODIES

- Global
- International
- National
- Where appropriate

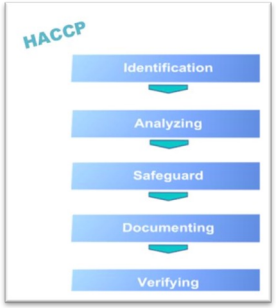
- General Food Law
- Codex Alimentarius

LEGISLATIONS

Certification Management

IFS Standard requirements

1. Quality system
1.2 HACCP system
2. Management responsibility
3. Resource Management
4. Product control
5. Measurements, analysis, improvements



BRC Standard requirements

1. HACCP system
2. Quality system
3. Standards for the factory environment
4. Product control
5. Process control
6. Staff

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LEGISLATIONS

Customers & Consumers

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LEGISLATIONS

Demand Relationship Management (DRM)

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LEGISLATIONS

Food and Drink Management

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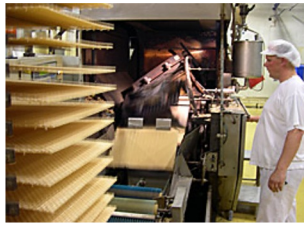
LEGISLATIONS

Business Performance Management (BPM)



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FOOD AND DRINK FACTORY

FOOD & DRINK MANAGEMENT

LABORATORIES **PRODUCT SUPPLIERS** **SERVICE SUPPLIERS**

Microbiological	Raw materials	Cleaning and Hygiene
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	Packaging	Measurements
	Machines	Cooling Systems

GOVERNMENT CONTROL BODIES

Global	General Food Law
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LEGISLATIONS

Suppliers

QUALITY STANDARDS

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LEGISLATIONS

Supply Relationship Management (SRM)

measure

register

validate

test

process registration

gas packaging

permeability

surface technique

and more

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LEGISLATIONS

Government and Legislation

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LEGISLATIONS

Legislation Management

QUALITY STANDARDS

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LEGISLATIONS

4 aspects recur in all groups:

- Specifications
- Traceability
- Quality activities
- Assessment

Food Safety Compliance management

Management of business performance, demand and supply relations, legislation and certification with regard to Food Safety, taking into specifications, quality activities, traceability and assessment.

	Specifications	Quality activities	Traceability	Assessment
	Requesting, drawing up, issuing and securing specifications regarding raw materials, semi-finished products, processes and end products, with which legalisation, quality standards and customer requirements are met.	Drawing up, complying with and guaranteeing product and process parameters through procedures, job descriptions and responsibilities with which legalisation, quality standards and customer requirements are met.	Registering all information flows and related actions regarding raw materials, semi-finished products, processes and end products, with which legalisation, quality standards and customer requirements are met (transparency and consumer intimacy).	Testing whether the product and process parameters and the related procedures, job descriptions and responsibilities meet legislation, the quality standards and customer requirements that are set.
Quality Standards				
Certification	Standard requirements	Operational framework	Test, certification body informed	HACCP, TACCP, VACCP, standard based practice
Customers & Consumers				
Demand Relationships	Product, process requirements	Demand Information Center	Products, specifications	Customer satisfaction, consumer needs
Food Company				
Food Company	Product, process and people requirements	Training, support, procedures, quality documents and database	Ingredients, semi-products, final products	Business System
Suppliers				
Supply Relationships	Product, process and people requirements	Supply Information Center	Raw materials, services, specifications	Supplier selection and performance
Legislation				
Legislation	Legal requirements	HACCP and prerequisite program	Food Safety Authority informed	HACCP, legal based practice

Food management:

- Dynamic playing field
  - 2000 quality requirements
  - 100 suppliers
  - 100 customers
  - 100 employees
  - 400 legislative changes

Legislation: HACCP

- Hazard analysis
- Overview of pathogens, chemical hazards
  - Pathogenic bacteria
  - Mycotoxins
  - Other biotoxins
  - Viruses, rickets and prions
  - Parasites & Pests
  - Chemical & Physical
  - Zoonoses & Extensive Toxins
  - Spoilers

- Hazard analysis
  - Control of raw material hazards
  - Process hazard management
  - HACCP-team
  - Decision tree
  - Control measures

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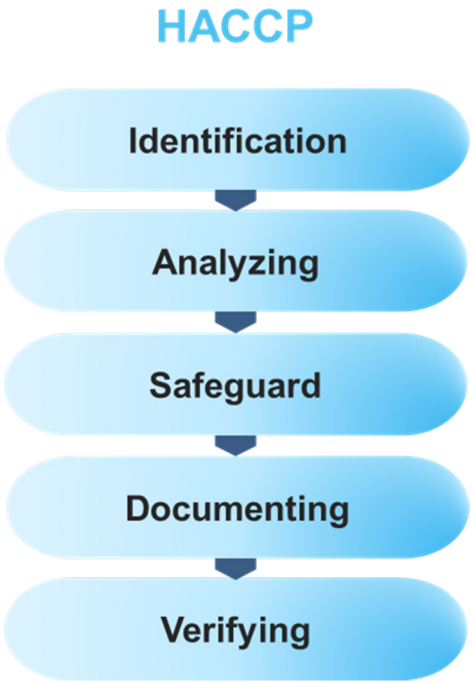
HACCP Introduction

HACCP

- **Hazard Analysis and Critical Control Points**
- ‘For everyone who works with food’
- Food safety system, based on a risk analysis
- Required since 1998, checked by the Keuringsdienst van Waren.



HACCP in practice

HACCP

- Identification
- Analyzing
- Safeguard
- Documenting
- Verifying

Identification

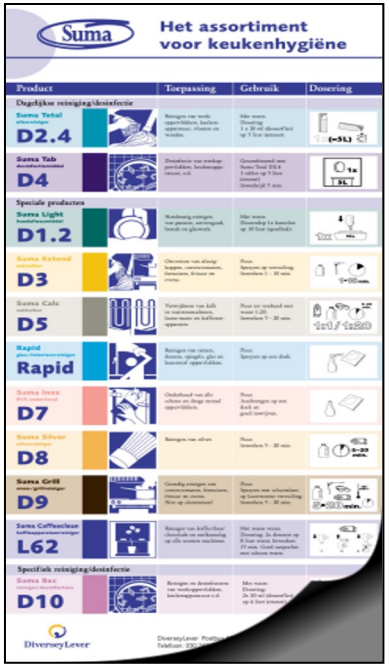
- Quality policy
- Forming a HACCP team
- Food safety information
- Industry / hygiene codes
- Also include your product / market combination factors!

Identification: Food Poisoning

- 75,000 reported cases per year
- 1,500,000 in reality
- Symptoms like the flu
- Sometimes need to go to the doctor
- More than 70% of these illnesses originate outside the home

Identification: Hygiene in the kitchen/production

- It must be done! (HACCP)
- Product liability
- Consumer expectation
- Economic importance
- It works better



Identification: hygiene codes: answer from industries

- Settings
- Catering
- Hospitality industry
- CBL
- Gas station convenience stores
- Sport canteens

HACCP in practice

HACCP

- Identification
- Analyzing 
- Safeguard
- Documenting
- Verifying

Analyzing

- Dangers and critical concerns
- Risks (quantitative risk analysis) and preventative measures
- Critical control points

Hazard analysis

Hazard analysis means that the potential hazards of all food preparation steps must be identified and analyzed.

- There are three types of hazards:
  - **physical hazards**
  - **chemical hazards**
  - **(micro)biological hazards**

Analysis: Physical hazards

Physical hazards usually involve foreign substances such as metal particles, glass, bones, or stones that can cause cuts in the mouth, break teeth, cause choking, or perforate the gastrointestinal tract.

This includes various materials such as those originating from land, animals, glass objects, metal objects etc. With respect to chemical and biological hazards, physical hazards are often visible and can be felt.

Analysis: Chemical hazards

Chemical hazards include substances that adversely affect health, because they are acutely dangerous or because they cause damage in the long term. The following types of substances should be considered:

- Substances of natural origin,
- (Agricultural) chemicals,
- Environmental pollution.

Analysis: Biological hazards

When making an inventory of the biological hazards, it is important to identify those factors and microorganisms that play a role in the occurrence of food spoilage, food infection, and food poisoning. The presence and occurrence of microorganisms in food is determined by three factors, namely:

- Factors determining the “introduction” (sources).
- Factors influencing the growth of microorganisms (conditions).
- Factors by which microorganisms are killed (processes).

Biological hazards: Bacteria

- Examples of infectious pathogens: *Campylobacter jejuni*, *Salmonella*, *Shigella*, *Escherichia coli*, *Vibrio cholerae*, *Vibrio parahaemolyticus*, *Listeria*, etc.

- Examples of toxigenic pathogens: *Bacillus cereus*, *Clostridium botulinum*, *Clostridium perfringens*, *Staphylococcus aureus*, fungi, etc.

Biological hazards: Viruses

- Small round structured viruses (SRSV's) appear to be the main cause of food-related viral infections.
- The food-related infections are mainly caused by people contaminating ready-to-eat food.

Analysis: Risk assessment

Table 3. Risk of food-related infections/diseases caused by various groups of microorganisms.
(van Notermans et al., 1994a)

A. Infective microorganism	*Average chance of infection from exposure to 1 microorganism*
Campylobacter	7.0×10^{-3}
Salmonella	2.3×10^{-3}
Shigella	1.0×10^{-3}
Vibrio cholerae classical	7.0×10^{-6}
Vibrio cholerae E1	1.5×10^{-5}
B. microorganisms causing toxic infection	*Number that can cause illness*
Clostridium perfringens	10^5
Bacillus cereus (diarrheal type)	10^5
C. Microorganisms causing intoxication	*Amount of toxins causing the symptoms*
Clostridium botulinum	0.5 – 5 ng
Staphylococcus aureus	0.5 – 5 µg
Bacillus cereus (vomiting type)	?

Analysis: Risk assessment

Table 1: Overview of the estimated severity of the hazard and the frequency with which the hazard occurs, on a scale of 1 to 4

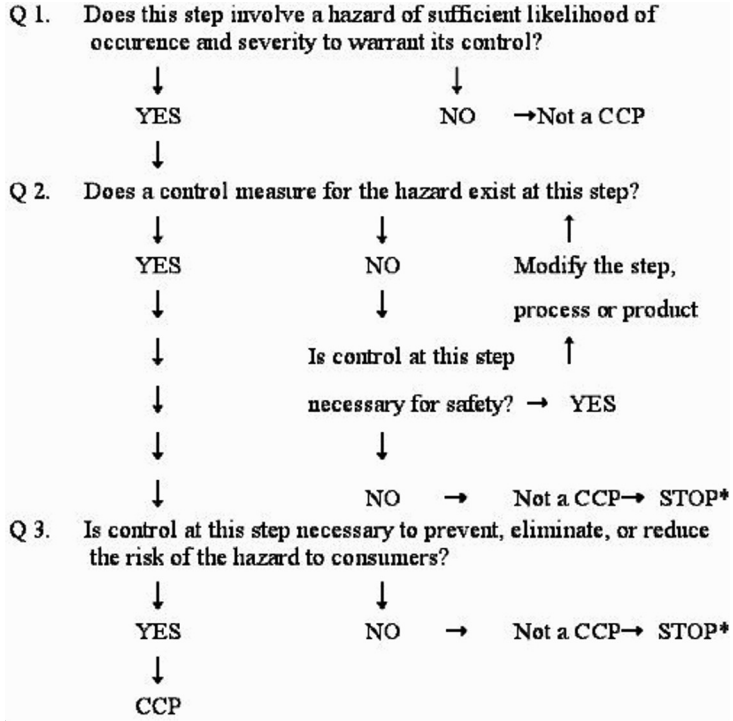
Severity	Frequency of occurrence		
	Little	Moderate	Often
Major	3	4	4
Moderate	2	3	4
Low	1	2	3

The following was used as an aid in estimating the hazard, whether high, moderate or low:
Major: serious injury, serious illness
Moderate: moderate injury, considerable illness
Low: hardly any illness or minor illness

When estimating the frequency, little, moderate or often, the following was used as an aid:
Little: 1 0p 1000,000 - 1 in 100,000
Moderate: 1 in 100,000 - 1 in 10,000
Often: 1 in 10,000 - 1 in 1000

CCP Analysis

- Critical Control Point (CCP) analysis
  - Identify the points where hygiene and food safety can go wrong
  - Regular checking of these points



Difference between PVA-CCP

- **PVA = point of attention**
  (= general control measure); the preventative measures of a general nature (purchasing plan, hygiene plan, maintenance plan) are points of attention. It should be checked whether these points meet the requirements of the objectives of the food safety system.

- **CCP = critical control point**
  specification, a process step, an activity that eliminates or controls a potential hazard, such that the risk is reduced to an acceptable and manageable level.

HACCP in practice

Safeguard

- Complete system of safeguarding for these points
  - With duties and responsibilities
  - Instructions, procedures, and checklists

Important points

- Entry control
- Closed cold chain and best before date
- Pest control
- Cleaning and hygiene
- Personal hygiene
- Transport

Entry control

- Reliable suppliers
- Good product specifications / order lists
- Closed cold chain
- Best before date products
- Method of packaging

Closed cold chain, best before date

- Products to be <7 degrees Celsius
- Products to be <4 degrees Celsius
- Frozen products must be < -18 degrees Celsius
- Make sure that the cold chain is guaranteed until consumption.
- Take temperature and time into account.

Pest Control

- List of pesticides used
- User manual
- Pest control checklists
- Pest monitoring

Cleaning and hygiene

A good plan

It is great that the government sets rules, but what does such a thorough cleaning plan look like? The basis of such a professional plan is formed by five points:

1. Organization and Staff

2. Clear methods

3. Clear assortment

4. Environment and safety

5. Planning and control

When drawing up the cleaning schedule and control, take the following issues into account:

- Surroundings

Which cleaning agents do we use? At what times should cleaning be done? How and where are the resources used?

- Approach

How can employees be involved in the cleaning process in the most efficient way? How can planning and control contribute to this? And how can we monitor the quality of the process by measuring and registering?

- Organization

How do we set up the control system?
Which achievements do you want to make visible?
How do we then use that information to make improvements?
And what is the impact of this on the entire business operations?

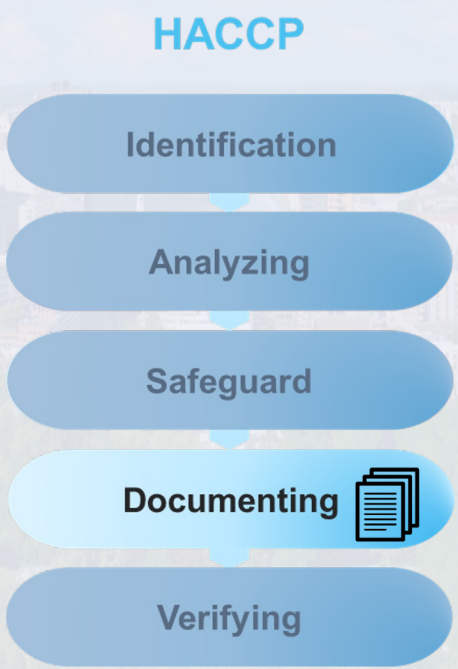
- Conditions

How can the results of cleaning and hygiene be demonstrated, so that, for example, it can be proven that everything was in order a month ago?

Cleaning and hygiene

… And the method of food preparation, the frequency of washing hands, wearing jewelry, having a cold in combination with food preparation.

HACCP in practice



Documenting

- Specifications
- Procedure & Instructions
- Registration forms: Also, the corrective measures!

HACCP in practice

HACCP

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- Verifying

Verifying

- Internal
- External

Verification of the HACCP system

(WHL, art.30; CBL hygienecode 2002, 15.2, blz. 97)

The purpose of verification is to determine whether the control measures included in the HACCP system are efficient and effective. In short: does the supermarket have a demonstrably controlled system (demonstrable for both the supermarket itself and third parties)

Example of requirements for retailers

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Methodology

Methodology

- Firstly, the prerequisite program (PRP) must be completed.
- The entire food safety plan is based on a prerequisite program, followed by HACCP-based procedures.
- In the HACCP study, specific hazards are related to the raw materials and the processes.
- For the purpose of clarifying generic hazards that are reduced to an acceptable level by means of the PRP, an additional control measure table has been drawn up to also operationalize the PRP in procedures.
- This is not necessary according to the principles of HACCP.
- The hazard analysis is based on the Codex Alimentarius, scientific documents and legal texts.
- The hazard analysis has been drawn up per process step and per product (raw material, admixture, end products). This involved looking at microbiological, chemical, and physical hazards. All this according to the likelihood and consequence principle.

Methodology: generic hazards

- Firstly, the prerequisite program (PRP) must be completed.
- For the purpose of clarifying generic hazards that are reduced to an acceptable level by means of the PRP, an additional control measures table has been drawn up to also operationalize the PRP in procedures.
- This is NOT necessary according to the principles of HACCP.

QAssurance

Prerequisite program

- Prerequisite program
- Reference: Codex Alimentarius, ‘General Principles of Food Hygiene’ CAC/RCP 1-1969, Rev. 3, 1997, Amended 1999.

Prerequisite program (1/6)

- 2. Establishment: design and facilities
- 2.1.1 Establishment
- 2.1.2 Equipment
- 2.2 Premises and rooms
- 2.2.1 Design and layout
- 2.2.2 Internal structures and fittings
- 2.2.3 Temporary / mobile premises, vending machines
- 2.3.1 General
- 2.3.2 Food control and monitoring equipment
- 2.3.3 Containers for waste and inedible substances
- 2.4.1 Water supply
- 2.4.2 Drainage and waste disposal
- 2.4.3 Cleaning
- 2.4.4 Personnel hygiene facilities and toilets
- 2.4.5 Temperature control
- 2.4.6 Air quality and ventilation
- 2.4.7 Lighting
- 2.4.8 Storage

Prerequisite program (2/6)

- 3.1 Control of food hazards
- 3.2.1 Time and temperature control
- 3.2.2 Specific process steps
- 3.2.3 Microbiological and other specifications
- 3.2.4 Microbiological cross contamination
- 3.2.5 Physical and chemical contamination
- 3.3 Incoming materials requirements
- 3.3.1 Specifications
- 3.3.2 Control at reception
- 3.3.3 Stock rotation
- 3.4 Packaging
- 3.4.1 Design and materials
- 3.4.2 ‘Food-grade’ materials and gases
- 3.4.3 Reusable packaging
- 3.5 Water
- 3.5.1 Water in contact with food

Prerequisite program (3/6)

- 3.5.2 Reuse of re-circulated water
- 3.5.3 Reuse of re-circulated, non-treated water
- 3.5.4 As an ingredient
- 3.5.5 Ice and steam
- 3.6 Management and supervision
- 3.6.1 Type of control and supervision
- 3.6.2 Knowledge required
- 3.7 Documentation and records
- 3.7.1 Retain records
- 3.7.2 Effectiveness and credibility
- 3.8 Recall procedures
- 3.8.1 Effective procedures
- 3.8.2 Tracing & Tracking
- 3.8.3 Destroy or reprocess

Prerequisite program (4/6)

- 4 Establishment: maintenance and sanitation
- 4.1 Maintenance and cleaning
- 4.1.1 General
- 4.1.2 Cleaning procedures and methods
- 4.2.1 Specifications
- 4.2.2 Monitoring and verification
- 4.3 Pest control
- 4.3.1 General
- 4.3.2 Preventing access
- 4.3.3 Harborage and infestation
- 4.3.4 Monitoring and detection
- 4.3.5 Eradication
- 4.4 Waste management
- 4.4.1 Removal, storage
- 4.4.2 Cleaning
- 4.5 Sanitation systems
- 4.5.1 Monitoring
- 4.5.2 Verification
- 4.5.3 Review

Prerequisite program (5/6)

- 5 Establishment: personal hygiene
- 5.1 Health status
- 5.1.1 Access prevention
- 5.2 Illness and injuries
- 5.2.1 Conditions to be reported
- 5.3 Personal cleanliness
- 5.3.1 Protective clothing
- 5.3.2 Cuts and wounds
- 5.3.3 Washing hands
- 5.4 Personal behavior
- 5.4.1 Smoking, eating, sneezing
- 5.4.2 Jewelry
- 5.5 Visitors
- 5.5.1 Cleanliness and behavior

Prerequisite program (6/6)

- 6 Transport
- 6.1 General
- 6.2 Requirements
- 6.3 Use and maintenance

- 7 Product information and consumer awareness
- 7.1 Batch identification
- 7.2 Product information
- 7.3 Labelling
- 7.4 Consumer education

- 8 Training
- 8.1 Awareness and responsibilities
- 8.2 Training programs
- 8.3 Instruction and supervision
- 8.4 Refresher training

Generic hazards (1/3)

- Cross-contamination with pathogens towards the product with a risk of disease.
- Cross-contamination with pathogens or hazardous substances due to poor company hygiene in the broad sense of the word with a risk of disease.
- Pests, excrement, food, etc. Pests can carry pathogens with a risk of disease.
- Accelerated spoilage due to the product temperature becoming too high during processing.
- Decay of products due to too long storage time.
- Contamination with non-product components: glass, wood, metal, packaging, etc.
- Infection with PVB due to poor maintenance. And product contamination with non-food-grade agents.
- Accumulation of, and cross-contamination with, dirt and microorganisms (pathogens).
- Contamination / migration from packaging materials to product.
- Risk of illness due to incorrect label information (allergens)

Generic hazards (2/3)

- Cross-contamination with allergens due to incorrect recipe
- The use, processing of “bad” and dangerous products with all its consequences.
- Injuries can occur to the consumer if one consumes a product with a shard of glass.
- Serious injuries can occur to the consumer if one consumes a product with wood splinters.
- Cross-contamination with allergens due to wrong working method.
- Accelerated spoilage due to incorrect recipe (too little salt, etc.).
- Cross-contamination from poorly loaded trucks.
- Accelerated decay, outgrowth of pathogens due to incorrect transport temperature.
- Outgrowth of pathogens and spoilage due to a too long shelf life (submit best before date)
- Outgrowth of pathogens and spoilage due to a too long shelf life on the label.
- Cross-contamination from poor building and machinery condition.

Generic hazards (3/3)

- Hazardous products by incompetent personnel.
- Dangerous products due to non-functioning or malfunctioning measuring instruments.
- Dangerous products back into production due to returns.
- Improper storage, disposal and / or collection of waste with the risk of end product contamination.
- Contamination of intent / sabotage.
- Dangerous situations due to non-compliance with claims.
- Product contamination from sick employees or visitors.
- Delivering / producing new products that can pose a hazard: microbiological, chemical or physical.
- Cross-contamination with dirt, pathogens from poorly washing clothing.
- Delivery of products due to poor CCP measurements due to ignorance.

QAssurance

Control measures

Control measures: procedures (1/2)

- Waste
- Business security
- Business hygiene
- Quarantine, incidents and recall
- Prerequisite program and maintenance
- Hygiene
- Hygiene and visitors.
- Customer and customer satisfaction
- Supplier and supplier assessment
- Microbiological research
- Maintenance
- Supplier and supplier assessment

Control measures: procedures (2/2)

- Pest and entry control
- Education and training
- Storage
- Product development and calibration
- Non-product components, glass, wood
- Cleaning and disinfection
- Rework
- Transport
- Release of products
- Wash clothes

Generic instructions

- Check prerequisite program and construction inspection
- Process control checks
- Control foreign components
- Glass control
- Wood control
- Entry control
- Knowledge questions for staff and new staff
- Storage control
- Product control
- Cleaning control, cleaning performance and disinfection control
- Release after maintenance

Prerequisite program table based on generic hazards and procedures and instructions

Control measures

The prerequisite program lists various possible dangers and points for attention. The applicable aspects are governed by procedures, instructions and the accompanying measures.

Since they arise from the basic benefits program or that the basic conditions program gave rise to the drawing up of these measures, they are not guided by the decision tree.

The following measures apply within our company.

Danger	Control by	Norm	Action in case of deviation	Procedure/ instruction
Cross-contamination with pathogens towards the product with a risk of disease.	Cross-contamination is prevented by proper personal hygiene.	Everyone must comply with the applicable regulations.	Re-instruction of staff, addressing staff. Block products at extremes.	Procedure: hygiene Instruction: hygiene control
Cross-contamination with pathogens or hazardous substances due to poor industrial hygiene in the broad sense of the word, with a risk of disease.	Cross-contamination is prevented by following the company hygiene.	Everyone must comply with the applicable regulations.	Re-instruction of staff, addressing staff. Block products at extremes.	Procedure: industrial hygiene Instruction: hygiene control
Pests feces, feeding, etc. Pest can be carriers of pathogens with the risk of disease.	Good pest control, entrance check and weekly check for accumulation of dirt / food.	No bugs	Apply additional control. Instruction staff. Structural adjustments.	Procedure: pests and entry check Instruction: hygiene check, pest check and entry check
Accelerated spoilage due to the product temperature becoming too high during processing.	By controlling the ambient temperature, heating is prevented. Measuring the product temperature provides insight into the temperature of products in the department.	see instruction	Block products. Destroy products if the temperature is much too high. Ambient temperature control. Decrease ambient temperature. Increase throughput speed. Instruction staff.	Instruction: product temperature
Decay of products due to too long storage time.	Visual checks on shelf life	Must not be expired	Destroy product	Procedure: storage Instruction: storage check
Contamination with non-product components: glass, wood, metal. packaging, etc.	Control for foreign components and the possibility of cross-contamination.	No contamination. No possibility of contamination.	Block products, process or equipment. Block maintenance. Destroy products.	Procedure: PVB, glass, wood Instruction: control, non-product components

Generic hazards and controls linked to process steps

Danger	Control by	Norm	Action in case of deviation	Procedure/ instruction	1000	2000	3000	4000	5000
					generally	processes	stews	Smoked products	single products
Cross-contamination with pathogens towards the product with a risk of disease.	Cross-contamination is prevented by proper personal hygiene.	Everyone must comply with the applicable regulations.	Re-instruction of staff, addressing staff. Block products at extremes.	Procedure: hygiene Instruction: hygiene control					
Cross-contamination with pathogens or hazardous substances due to poor industrial hygiene in the broad sense of the word, with a risk of disease.	Cross-contamination is prevented by following the company hygiene.	Everyone must comply with the applicable regulations.	Re-instruction of staff, addressing staff. Block products at extremes.	Procedure: industrial hygiene Instruction: hygiene control		x	x	x	X
Pests feces, feeding, etc. Pest can be carriers of pathogens with the risk of disease.	Good pest control, entrance check and weekly check for accumulation of dirt / food.	No bugs	Apply additional control. Instruction staff. Structural adjustments.	Procedure: pests and entry check Instruction: hygiene check, pest check and entry check		X	x	x	x
Accelerated spoilage due to the product temperature becoming too high during processing.	By controlling the ambient temperature, heating is prevented. Measuring the product temperature provides insight into the temperature of products in the department.	see instruction	Block products. Destroy products if the temperature is much too high. Ambient temperature control. Decrease ambient temperature. Increase throughput speed. Instruction staff.	Instruction: product temperature	x	x	x	x	x
=Decay of products due to too long storage time.	Visual checks on shelf life	Must not be expired	Destroy product	Procedure: storage Instruction: storage check	x	x	x	x	x
Contamination with non-product components: glass, wood, metal. packaging, etc.	Control for foreign components and the possibility of cross-contamination.	No contamination. No possibility of contamination.	Block products, process or equipment. Block maintenance. Destroy products.	Procedure: PVB, glass, wood Instruction: control, non-product components					

Methodology specific hazards

- In the HACCP study, specific hazards are related to the raw materials and the processes.
- The hazard analysis is based on the Codex Alimentarius, scientific documents and legal texts.
- The hazard analysis has been drawn up per process step and per product (raw material, admixture, end products). This involved looking at microbiological, chemical and physical hazards. All this according to the likelihood x consequence principle.

Introduction

1. Food Safety Compliance
2. HACCP introduction
3. Methodology
    - Prerequisite program
    - Control measures
4. **HACCP study: specific hazards**
5. HACCP study: decision tree, raw materials and processes
6. Cornelis Bartlema Food Group: HACCP

HACCP study: specific hazards

HACCP study: specific hazards

Hazard analysis

Overview of pathogens, chemical hazards

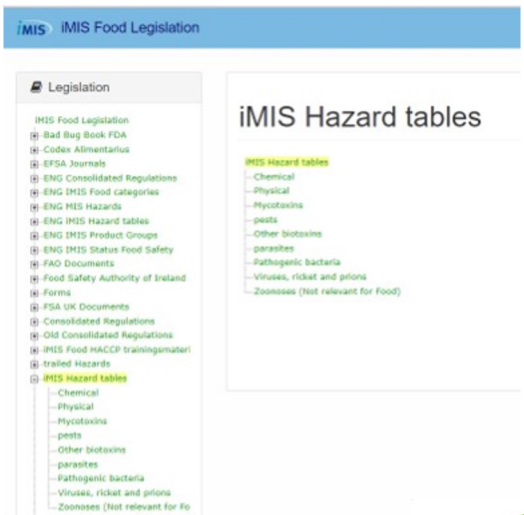
- Pathogenic bacteria
- Mycotoxins
- Other biotoxins
- Viruses, rickets and prions
- Parasites & Pests
- Chemical & Physical
- Zoonoses & Extensive Toxins
- Spoilers

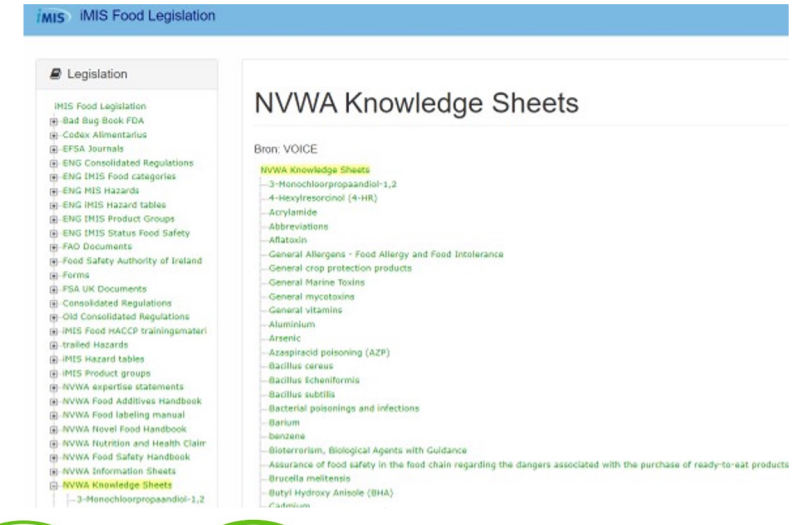
Hazard analysis

- Control of raw material hazards
- Process hazard management
- HACCP-team
- Decision tree
- Control measures

- **Specific hazards: Codex approach**
  - **Raw materials and info sheet 64/65/85**
  - **Processes**
- **HACCP approach validated weekly in audits and part of the iMIS Food Updates.**

HACCP study: specific hazards background information





Risk determination method

Systematics Statement

Risk analysis statement (based on: Probability x Severity = Risk)

Probability:
Probability level 0 = there is no danger or the danger is not (yet) known
probability level 1 = the reality that a hazard can occur

Severity:
Severity level 0 = no danger to public health
Severity level 1 = any known threat to public health

Risk:
By combining the probability with the severity, the degree of risk can be determined, see table below PROBABILITY x SERIOUS = RISK

Probability ▼		
1	No risk	Risk
0	No risk	No risk
Severity ▶	0	1

Red – CCP

Green – no risk

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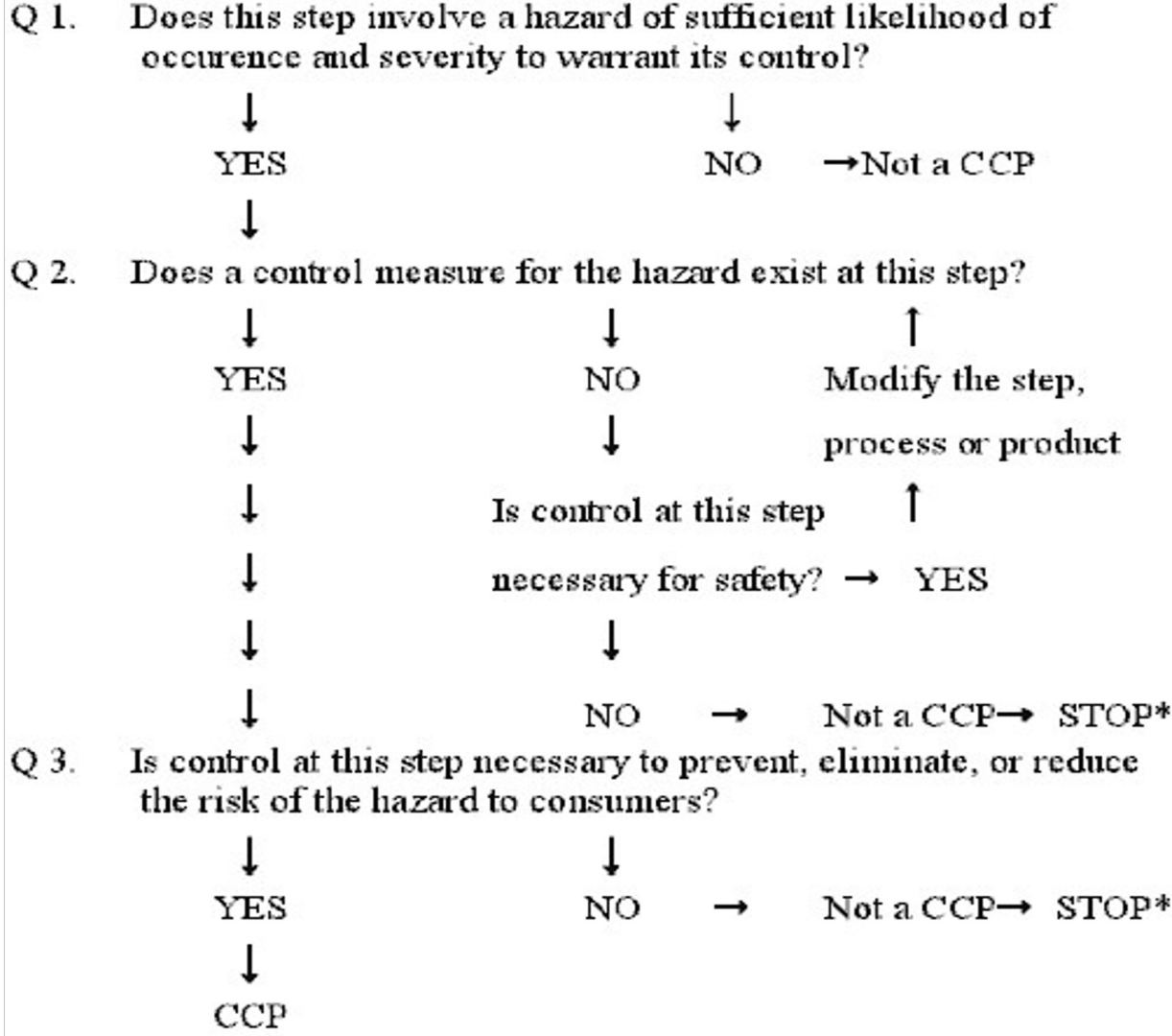
HACCP study: decision tree, raw materials and processes

Decision tree



HACCP study: raw materials and processes

Raw material	Hazard	Type of Hazard	Cause	Potential effect	Probability to occur	Risk = probability x potential effect	Control measure	Is control of this risk necessary?	Is this phase specifically intended to eliminate the potential hazard or	Would the contamination with the identified hazard be such that the	Will a subsequent production phase eliminate the identified	CCP: Critical control point	Nr.	Substantiation
All kinds of unprocessed poultry meat	Presence of pathogenic microorganisms such as Salmonella and parasites	Microbiological	Incorrect slaughtering process	1	1	1	None, but minimal purchasing on specification	Yes	No	Yes	Yes			The meat will be heated at a later stage in which the vegetative pathogenic microorganisms will be killed.
All kinds of unprocessed poultry meat	Residues of veterinary drugs	Chemical	Misuse of veterinary medicines	1	0	0	None, but minimal purchasing on specification	No						No risk due to National plan
All kinds of unprocessed game	Presence of pathogenic microorganisms such as Salmonella and parasites	Microbiological	Incorrect slaughtering process	1	1	1	None, but minimal purchasing on specification	Yes	No	Yes	Yes			The meat will be heated at a later stage in which the vegetative pathogenic microorganisms will be killed.

HACCP study: raw materials and processes

Raw material	Hazard	Type of Hazard	Cause	Potential effect	Probability to occur	Risk = probability x potential effect	Control measure	Is control of this risk necessary?	Is this phase specifically intended to eliminate the potential hazard or	Would the contamination with the identified hazard be such that the	Will a subsequent production phase eliminate the identified	CCP: Critical control point	Nr.	Substantiation
General														
Receives perishable raw materials	Outgrowth of pathogenic microorganisms	Microbiological	Incorrect transport of raw materials	1	1	1	Measure the temperature	Yes	Yes			CCP	1	The meat will be heated at a later stage in which the vegetative pathogenic microorganisms will be killed.
Receipt of frozen products	Outgrowth of pathogenic microorganisms	Microbiological	Transport temperature too high	1	0	0	None	No				Legal condition (LCP)		Only when frozen products are delivered above 7 ° C can there be dangers for public health. There is, however, a legal requirement of -15 ° C.
Receipt of other raw materials	No specific danger													
Storage of frozen products	Outgrowth of pathogenic microorganisms	Microbiological	Transport temperature too high	1	0	0	Frozen temperature measurement	No				Legal condition (LCP)		Only when frozen products are delivered above 7 ° C can there be dangers for public health. There is, however, a

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Food Safety Compliance
HACCP

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