TRAINING MANUAL 2025

Food Hygiene Certification

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LEVEL 2 CERTIFICATION - VALID IN THE EU

TRAINING ON **ALLERGENS** & **ACRYLAMIDE**

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ABOUT THE AUTHOR

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1. Introduction

It is important to know and comply with hygiene rules during the handling of food, because this way we can guarantee food safety and prevent foodborne diseases. Most of the time, the food handler is the one who intervenes as the vehicle of transmission of these diseases, so it is important that we take into account the great role we play in prevention.

The training of food handlers is mandatory and will allow you to obtain a certificate that will accredit you as a food handler, allowing you to work in the food industry. Although it is not mandatory, it is recommended to renew the certificate every 4 years, and to be updated according to the job. Then, the company itself should offer a specific training in its sector.

A food handler is anyone who, through their work activity, has direct contact with food during any of its phases until it reaches the final consumer. This includes: preparation, manufacture, processing, packaging, storage, transport, distribution, sale, supply and service.

This training course will enable you to perform food handling functions, and you should be responsible with this information, as the health of many consumers depends on you.

What is the training on food handling?

The food handling course will enable you to perform food handling functions, such as the different factors that can cause food alteration or contamination and the possible consequences they can have on the health of consumers (allergies, illnesses, etc.).

Purposes of the Food Handler Course

In the food handler course you will find all the necessary training to obtain the food handling certificate. The topics include:

- The principles to be followed to achieve correct food hygiene.
- The types of contaminants and the hazards associated with them.
- The different food-borne diseases.
- Appropriate risk prevention methods.
- Regulation governing the training of food handlers and the Food Information Law (Allergens) Act.

The Certification

Once you have passed the test, you will be able to obtain the title of food handler with its corresponding 100% legal certificate. We will send the certificate to your email address instantly after payment has been made. Also, if you wish, we may send it to you by regular mail within 2 to 4 working days.

In order to obtain the certificate, all the topics of the food handling card are available to you for free. They do offer you a complete training in food handling.

2. Food Hygiene

According to the World Health Organization (WHO), health is a complete state of physical, mental and social well-being, and not just the absence of physical discomfort or illness.

So what is food hygiene?

It is the group of measures needed to ensure food safety from farm to table, that is, from the moment they are obtained until they reach the final consumer.

Therefore, we define food-borne disease as any disease caused by consuming contaminated food.

It is important to maintain good food hygiene, as it will lead not only to a safer handling of food, but also to a good reputation for the company, increased customer satisfaction, and we will also avoid possible penalties from health authorities.

2.1 Most common bacteria in food

The bacteria and viruses that most commonly contaminate the food we eat are:

Salmonella: it is one of the most common causes of food poisoning. It is found in eggs, raw poultry, beef, and sometimes unwashed fruits and vegetables.

Escherichia coli: it is found in the digestive system in animals and humans. In food it is found in raw or undercooked beef, contaminated water, raw milk and fresh products.

Listeria monocytogenes: it is found in ready-to-eat cold meats, refrigerated meat-based pâtés, raw dairy products, refrigerated smoked seafood or raw sprouts.

Campylobacter jejuni: it is found in raw or undercooked poultry meat, unpasteurized milk, or contaminated or untreated water.

Staphylococcus aureus: it is found in foods rich in cooked proteins (cooked ham, poultry meat), dairy products, salads and pastry products (especially those made with pastry creams).

Shigella: it is found in dairy products, beef and chicken, raw fruits and vegetables, raw oysters, and contaminated or untreated water.

Yersinia enterocolitica: beef, fish, raw seafood, dairy products, contaminated or non-potable water and in fresh products.

2.2 Recommended food temperatures

With regards to food hygiene and safety, temperature is one of the most important factors to take into account when it comes to food preservation.

Temperature acts as a barrier to prevent the proliferation of microorganisms, so the correct control of the temperature of food, both in the refrigeration and cooking process is a key element to prevent the emergence and development of pathogenic bacteria.

Conservation temperatures:

Fresh food should be cooled to a temperature of 0-5°C, which prevents the growth of pathogenic microorganisms. The lower the temperature, the slower the proliferation of microorganisms, so freezing at -18°C is the safest, because although it does not eliminate pathogenic microorganisms, it keeps them in a latent state in which they do not multiply either.

This freezing temperature maintains the original characteristics of the food and reduces the risk of contamination. However, not all foods need to be refrigerated or frozen, as some food (such as oil, pastries, potatoes, nuts, pasta, rice, etc.) can be stored at room temperature, in dry places or, in some cases, away from light.

Cooking temperatures:

It is recommended to cook at a temperature of 75 °C for a minimum of two minutes.

At what temperature do bacteria die in food?

In order to ensure proper food hygiene, it is important to know the temperature at which bacteria die in food. One of the most effective methods of killing bacteria is cooking at, at le˚ast, 75°C for two minutes, although temperature and time requirements depend on the food and the microorganisms it may harbor.

In cooking methods such as boiling, temperatures reach around 100°C, while in frying, temperatures range between 180 and 300°C. In the latter case, special care must be taken to ensure that the food reaches a minimum temperature because the temperature of the oil decreases when the food is introduced and depends on its thickness.

The temperature of both methods is adequate to eliminate most microorganisms and thus ensure safe consumption.

2.3 Hygiene of the most common foods

For proper hygiene, a number of food handling rules must be followed. A common guideline for all types of food is that when cooking or handling any food, you should first make sure that the work area and utensils and tools are well cleaned and disinfected.

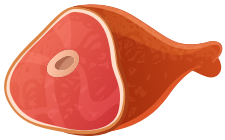
Fish

Before cutting or cooking, make sure that it is kept in a fit condition. To do this, make sure that the scales are firm, the gills are reddish and the eyes are bulging and shiny. Cooking at a minimum temperature of 65°C is recommended.

Meat

In the case of chicken, make sure it has its characteristic smell and texture. If it has a soft, sticky film or a greenish colour it is no longer suitable for consumption.

Recommendations for handling chicken include: using only a designated chicken board, wearing gloves when handling chicken, planning for consumption and thawing at least 24 hours, and avoiding contamination of other foods with chicken blood or meat fluids.



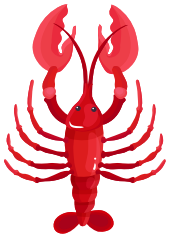
It is also recommended to cook the chicken at a minimum temperature of 75°C.

In the case of beef, again, the first thing to note is that it retains its original characteristics and is still fit for consumption. Other recommendations include using a specific beef chart, wearing gloves when handling meat, and making sure the meat is not in contact with other products.

The recommended cooking temperature is 75°C. It is also recommended not to keep the meat in the freezer for long periods of time, as this will change its colour and lose its nutrients.

For pork it is advisable to follow the same steps as for beef, unlike the cooking temperature, as in this case the recommended minimum is 64°C.

Seafood



Seafood is particularly fragile in terms of contamination, so for safety reasons, it is necessary to ensure that the cold chain is not broken in food handling processes.

The recommendations for handling seafood are to chill cooked seafood in an ice bath and to eat frozen seafood with head as soon as possible, as the head causes faster deterioration of the seafood even if it is frozen.

Vegetables and fruits

Fruits and vegetables are among the most easily and quickly contaminated foods. As with all other foods, the first recommendation is to observe that the qualities of the food are preserved.

In the case of fruits and vegetables, it is important to eliminate those specimens that begin to deteriorate in order to avoid the spread of the rest. It is also important to wash and disinfect these foods before consumption or processing.

These foods require particularly careful handling, since the blows generate breakages in the pieces that accelerate their decomposition. It is recommended to use a knife and specific board for cutting fruits and vegetables.

Milk products

Avoid exposure of milk products to room temperature for more than two hours (30 minutes for cheese). Milk products should be kept in the refrigerator for a maximum of 3 days.

2.4 Acrylamide in food

In recent years there has been growing concern about acrylamide. This chemical forms naturally in some foods after cooking at temperatures above **120ºC**, as a consequence of the commonly known as Maillard Reaction. These foods are those **rich in carbohydrates and starch**. The cooking methods that favour the creation of acrylamide are frying, roasting and toasting.

The European Food Safety Authority (**EFSA**) claims that research on animals suggests that consumption of acrylamide increases the likelihood of developing tumours or genetic mutations, and conclude that acrylamide consumption in humans potentially increases the risk of cancer.

One of the physical evidences observed in acrylamide foods is changes in taste and color (they take on a golden hue). Thus, the more golden (or burned) a food is, the more likely it is to contain a larger amount of acrylamide.

In November 2017, the European Union published the UE 2017/2158 Regulation in order to establish measures for operators with the aim of reducing the level of acrylamide in food.

The usual foods in which acrylamide can be formed are:

- **Potatoes**
- **Coffee**
- **Bread**
- **Cookies**
- **Cereals**

According to WHO, these are some of the measures that need to be taken to prevent the creation of acrylamide in food:

- **Do not bake or fry these foods over 120ºC**, as it is more likely to produce acrylamide in food.
- Prevent food from reaching a **very golden color**.
- Avoid cooking methods such as frying or baking when possible, and choose **steaming or boiling** instead.
- Choose **natural roast coffee**, which contains the least amount of acrylamide.

Concerning **fried potatoes**:

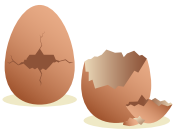
- Store them outside the refrigerator in a dark and cool place.
- Wash them well before frying.
- Prefer coarse cutting instead of fine cutting.

3. Contamination of food

What is food contamination?

A contaminant or a food hazard is any foreign agent to the food that is capable of producing a negative effect on the health of the consumer.

Depending on the origin of the contaminant, the types of food contamination are classified into physical, chemical and biological.



Physical contamination of food

They are foreign objects that are generally appreciated by the human eye, such as crystals, pellets, bones, thorns, shells, plastics, personal effects (earrings, watches, pendants...)... all of them pose a danger to the consumer since they can cause damage such as cuts, choking, etc...

Chemical contamination of food

In this group we include toxic substances that can reach the food by chance, or that are present in it due to incorrect handling. They are chemical products of all kinds such as: cleaning and disinfection products, insecticides, air fresheners, pesticide residues, heavy metals...

Biological contamination of food

It is caused by the action of living beings that contaminate food. A biological contaminant of food can be any living being such as: insects (flies, cockroaches...), rodents (rats and mice), birds (pigeons, sparrows, seagulls...), parasites (worms, weevils...), or microorganisms (bacteria, viruses and molds).

3.1 Main sources of food contamination

- **The environment**: water (contaminated or not potable), dust, soil, air... through all of them are transmitted microorganisms that can contaminate food.
- **Pests**: living beings mentioned above as insects, rodents, birds, parasites...
- **Utensils and premises**: if they do not have adequate hygiene, they will be the focus of infection.
- **Garbage**: If there is garbage near the food, it can contaminate it.
- **Other food**: occurs when the contaminant is transmitted from one food to another (cross-contamination).
- **The food handler himself**: often due to a lack of hygiene in the people around the food, it is often contaminated. Handlers may also be sick and transmit it to food, affecting the health of others.

3.2 Main pathways for food contaminants

Cross-contamination

It is the passing of contaminants from one food to another. It can be produced by mixing raw and cooked foods (in cooked foods we have eliminated most of the bacteria but not in raw foods, and they can pass from one to another, making cooked foods dangerous to health).

Cross contamination can also occur when using the same utensils (cutting board, knife....) to treat raw and then cooked food without cleaning them first.

Contamination from origin

Food at its source can become contaminated or altered due to the effect of environmental toxins, agricultural pollutants or livestock products.

Contamination by handling

This is one of the most common types of food handling. The food handler is the major risk factor for food contamination because he or she is in constant contact with food. For this reason, good food handling practices should be maximized to minimize risks as much as possible. General hygiene is essential, both in the workplace, in utensils and in personal hygiene. Handler's diseases, such as colds, can also be transmitted to food by coughing or sneezing.

3.3 How to know if a food is contaminated

Contaminated food does not always show obvious signs of spoilage. In packaged foods, it is essential to accept or reject the food on the basis of the expiry date indicated on the package.

If the food is out of date, the safest option is to discard it, since although it may appear to be in good condition, it may have begun its natural deterioration process.

Meat

The most obvious signs of contamination in meat are: green or brown coloration, rotten smell or slimy texture. In the case of birds, it is most common to observe a slimy film on the skin and meat, accompanied by an unpleasant smell.

Fish and seafood

Fresh fish shall have reddish gills, reddish eyes of the same colour and bulging, whole scales and reddish gills. Fresh fish has firm, abundant and shiny scales. When the scales are removed too easily, it is an indicator that the skin of the fish is soft and therefore not fresh.

On the other hand, the fish that has lost its freshness has dark, brownish gills, sunken, opaque eyes, and detached scales in parts.

Eggs

In the case of eggs, a good way to find out quickly and without having to spend time checking them is to fry them or open them in a container. If the bud is in good condition, it will remain centered in the center of the egg white and whole.

A tip for when several eggs are going to be collected, such as for example to make an omelette, is to open it in a container different from the recipient, because if it is in poor condition can be discarded without throwing all the eggs that have been collected in the same container.

Another very reliable, though somewhat more laborious, way is to immerse them in salt water: if they sink, that means they are fresh and ready for consumption, but if they float, it means they are in poor condition and cannot be consumed.

Milk products

In the case of milk or other milk products such as cheese, it is easier to differentiate whether they are in poor condition or whether they are still suitable for consumption.

The milk in poor condition is very evident, has a yellowish or greenish color and a sour taste that possibly, although we do not realize that it is in poor condition when served, the taste will certainly take us out of doubt and we can not consume it. Cheeses in poor condition have a green or brown colour, an unpleasant smell and a slimy layer. They may also have fungi that are not typical of a variety of cheese.

Fruits and vegetables

The case of contamination in fruits is also quite visible. Thus, signs of contamination present in fruits can be: fungus, pieces too soft or with a part of the piece too soft compared to the rest, presence of flies around or the fruit cover of a slimy film.

4. Food-borne diseases

Microorganisms act as a source of infection or food hazard. But what are microorganisms? They are also called germs or microbes and are living beings so small that they are invisible to the human eye.

Let's list them according to the harm they can cause:

- **Beneficial**: not all microorganisms are bad. Some of them are even used to make food (yoghurt, cheese, bread...).
- **Disruptive**: these are responsible for the decay of the food. They "warn" us of their presence, since when they are in a food they cause it to change its normal smell, colour, flavour and texture. Therefore, normally, we will not use these foods when they have a "rare" appearance. If something smells bad or has a strange color, we will not eat it because it will be bad food.
- **Pathogenic**: these are the most dangerous, because at first glance they do not produce changes in the food. They are the usual producers of food-borne diseases.

4.1 Types of foodborne diseases

Food-borne illness is caused by eating contaminated food or drink. Most of these diseases are caused by bacteria, viruses and parasites. Most common foodborne diseases are viral and bacterial.

Microbial

The most common diseases caused by bacteria are salmonella, campylobacteriosis, escherichia coli, listeria and vibrio cholerae. The manifestations of foodborne microbial diseases are usually gastrointestinal in nature, so the general symptoms of most microbial diseases are: abdominal cramps or pain, diarrhea (sometimes with bleeding), vomiting, and fever.

The presence of bacteria in food is not always visible, i.e. not whenever a food is contaminated by the presence of food bacteria, it will have changes in taste or smell or the appearance of the food will be altered. This is why it is so important to maintain proper prevention and hygiene in food handling.

Parasitical

Parasites are organisms that feed on the protective nutrients of other organisms known as hosts. These guests may be animals or human beings. Parasites can be present in both food and water and can cause disease. They are also transmitted from one host to another by the consumption

of contaminated water or food or by contact with the mouth of any contaminated agent that has come into contact with the faeces of infected animals or persons.

The most common diseases transmitted by parasites are: trematodiasis, echinococcosis, toxoplasmosis, trichinosis, taeniasis, cysticercosis, giardiasis, crypto or cyclosporiasis.

Viral

The most common microbial disease caused by viruses is norovirus, the most common cause of acute gastroenteritis. It is a highly contagious virus that causes inflammation of the stomach and intestines, resulting in stomach pain, vomiting, nausea and diarrhea. Unlike bacteria, viruses are strict intracellular parasites and cannot replicate outside the host organism, their spread depends closely on it.

For this reason, viruses cannot be replicated in water or food, so during processing, transport or storage, viral food contamination will not increase and may actually decrease. Most viruses in food or water are resistant to disinfection and heat.

4.2 What do bacteria need to live?

They need basically the same things we do to live: water, food and something to take shelter in, to be "at ease" wherever they are. Specifically, they need:

- **Water**: they need moisture or liquid. Therefore, if we remove the water from food (dehydrated, dried...), we will make it better preserved and not easily contaminated by microorganisms.

- **Nutrients**: food.

- **Heat**: they need to be at the right temperature to multiply.

  The most dangerous temperature is between 10°C and 60°C, as this is where they are best placed to divide. Only heat eliminates microorganisms, if we freeze food (colder than -18°C, i.e. -18°C, -19°C, -20°C...) it remains stable, "without moving" or multiplying, but if the food were to be put at a dangerous temperature, the bacteria would multiply.

  In refrigeration (between 0° and 5°C), they multiply but very slowly. That is why it is important to keep the right cold temperatures for the food.

- **Time**: if the conditions are right (they have water, food and heat), then the more time they have the more they multiply, and the greater the risk to the consumer. That is why it is important to keep food at the right temperature and protect it from different aggressions.

- **Acidity**: by increasing the acidity, the food becomes less contaminated by bacteria. That is why some foods are added lemon, vinegar, etc...

- **Oxygen**: bome bacteria live on oxygen ("breathe") but others grow without oxygen. Some of them are very dangerous such as Clostridium Botulinum which can develop inside cans.

4.3 Contamination factors

Bacteria, parasites and viruses appear, inhabit and reproduce in food when food safety conditions have not been adequate.

Knowing the factors that favour the appearance of contaminants in food is key to preventing and detecting them, thus minimising the risks of contamination and contracting food-borne diseases.

- **Poor hygiene** is one of the most common factors causing food contamination.

  To avoid this, as explained in Lesson 2 of this course, among others, it is essential that food handlers maintain good hygiene both in terms of food, storage and cooking facilities and in terms of the handler's own hygiene.

- **Cross-contamination** is another factor affecting food contamination.

- **Unsanitary conditions**: Improper slaughterhouse practices can lead to contamination, especially if livestock faecal matter is mixed with meat, as a small amount can contaminate a whole batch of meat.

  The same risk occurs in fruits and vegetables when they are fertilized with raw manure or when they are irrigated with contaminated water. Both meat and vegetables are associated with outbreaks of Escherichia coli.

- **Unsafe packaging**: Homemade canning can pose a risk that can be prevented by sterilising empty jars, hot-packaging and using self-sealing lids.

- **Inadequate storage**: bacteria multiply rapidly in a short time, so it is important not to leave food outside the refrigerator for more than two hours. It is recommended to eat or refrigerate raw foods such as creamy salads immediately.

4.4 Food prone to food-borne diseases

Any food can be susceptible to contamination, but it is true that there are some foods of higher risk, which by their nature, composition or form of culinary preparation make them perfect for bacteria to multiply in. Among these foods we find:

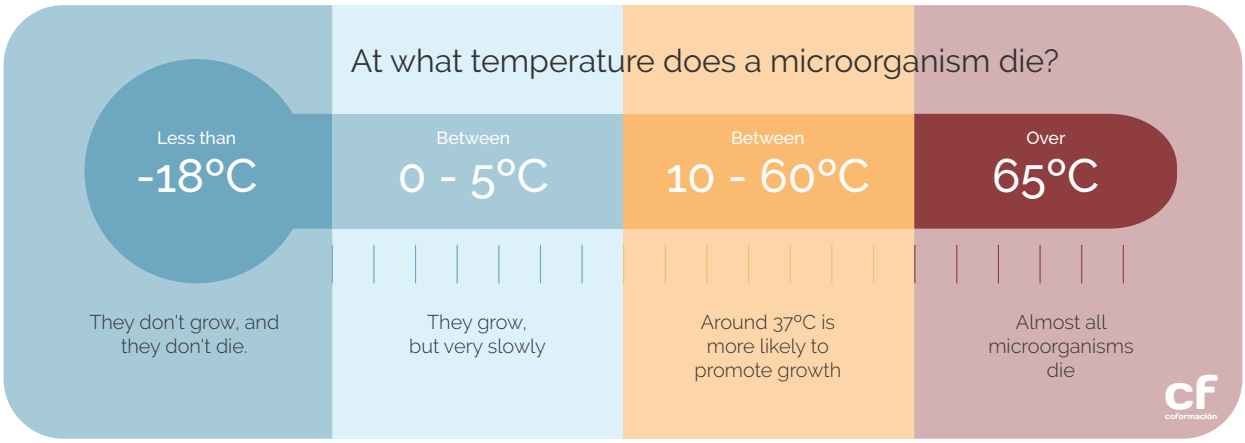
- **Egg-based dishes**: mayonnaise, salad, etc... hence the use of raw eggs is prohibited, instead use pasteurized egg or egg products.
- **Minced meat**: to make hamburgers, meatballs... the amount of food they have in contact with the air is much greater than a whole piece, not minced, so it is more likely to become contaminated.
- **Poultry and farm**: chicken, hen, partridge...
- **Fresh fish**, **seafood** and **molluscs**.
- **Raw products**.
- **Pastry or bakery products**: especially those containing cream.

5. Conservation and storage of food

The maximum time a food retains all its organoleptic, nutritional and health properties is called shelf life.

Preserving food consists of preventing the action of contaminating agents that can contaminate it and alter its original characteristics (smell, taste, appearance).

The most frequent and traditional conservation systems used are:



Refrigerated storage

Refrigeration: consists of keeping the food at low temperatures without it freezing (0-5°C). At this temperature the microorganisms will multiply very slowly.

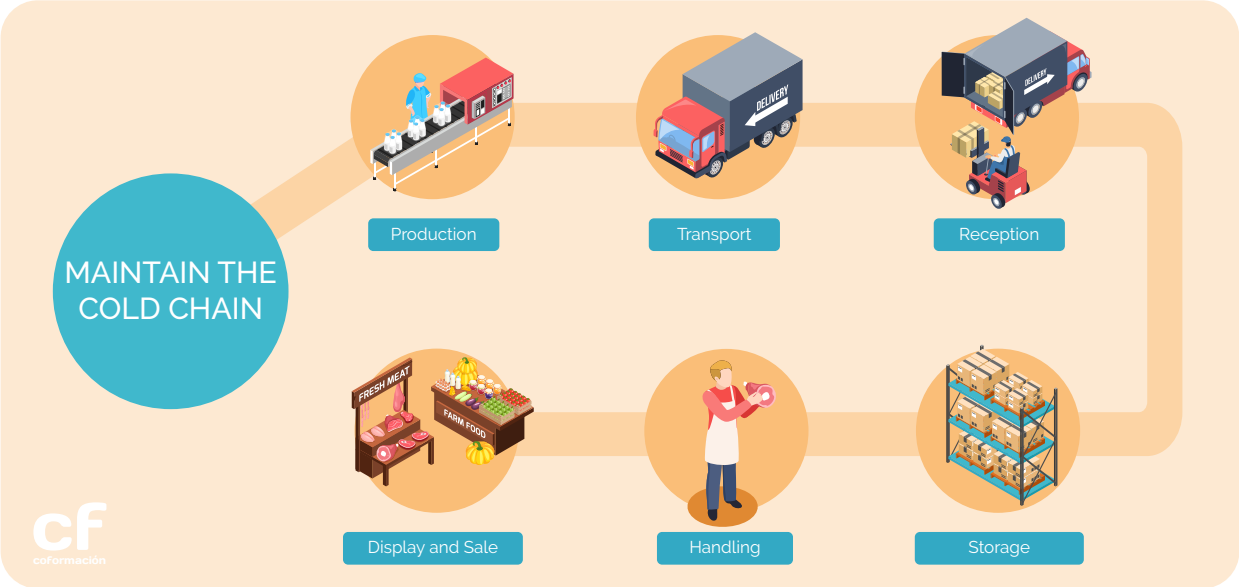
Freezing: consists in subjecting the food to temperatures below the freezing point for a reduced time (-18°C or less).

This process causes some of the water in the food to become ice, so that the microorganisms that exist prior to freezing do not grow, but neither do they die. In this process, it is important that freezing takes place in the shortest possible time so that the original characteristics of the product are not affected.

Ultrafreezing: consists of subjecting the food to a temperature of between -35 and -150°C, again, for a short period of time.

Freezing and deep-freezing are the food preservation processes that cause the least changes in the food, especially ultra-freezing, since the ice crystals formed during the process are smaller and do not damage the food tissues.

At this point it is very important to define the **COLD CHAIN** and its importance in food.



The food chain is all the stages it goes through from the moment it is obtained until it reaches the consumer, this would be: storage, transport, reception, handling and display to the final consumer.

Well, the COLD CHAIN consists of maintaining the cold (refrigeration or freezing) at its appropriate temperature throughout the process through which the food passes: production, transport, reception, storage, sale to the consumer.

If this temperature is not maintained throughout the process, the food will suffer IRREVERSIBLE consequences and will not have all its properties in good condition.

If the cold chain is broken, this can be observed in some products. For example: frost on frozen containers or frozen products forming a block of ice, abundant liquid on yoghurts when opening them...

Preservation by heat

The methods of preservation by heat are as follows:

- **Pasteurization**: consists of subjecting the food to temperatures close to 80ºC. Thus we destroy many microorganisms, but not all, so it is important that after pasteurization these foods are kept refrigerated, to keep the microorganisms that may be left "at bay". The shelf life of the food is low. Ex: pasteurized milk.

- **Cooking**: Bringing a food to a boil means that it is about 100°C. With this method we eliminate most of the microorganisms but not their spores. When we cook a food we not only do it in order to eliminate bacteria, but also modify its properties, making the food more digestible and more appealing to the consumer.

- **Sterilization**: The food is subjected to temperatures close to 120°C, thus destroying all the microorganisms in the food, including its spores.

- **Uperization (UHT)**: is a system where we apply a high temperature for a very short time, but enough to eliminate all microorganisms and their spores, and make the food suffer as little as possible by this heat treatment. Ex: UHT milk (we can keep it outside the fridge).

Chemical preservation

Chemical preservation consists of the addition of substances that chemically modify the food, for example by lowering its PH.

- **Salting**: addition of common salt to prevent the growth of microorganisms. The food that has undergone this process has changes in taste, smell, colour and consistency.

- **Sugaring:** the addition of sugar in high concentrations protects the food from microorganisms and therefore increases the shelf life. This process is carried out in the production of condensed milk or jams among others.

- **Curing**: this method uses, in addition to common salt, curing salts, nitrates and potassium and sodium nitrites. This process not only helps to preserve and protect against harmful microorganisms, but also stabilizes the red and rosy color of the meat.

- **Smoking**: This process uses the smoke resulting from the combustion of materials with a low content of resins or smoke flavourings. This method gives the food a peculiar taste and is applied to meat and fish.

- **Acidification**: consists of reducing the pH of the food, thus preventing the development of microorganisms. This is done by adding acidic substances such as vinegar to the food.

Preservation by dehydration

- **Drying**: is a partial loss of water under natural environmental conditions. It is also done by applying a gentle heat source and air currents.

- **Concentration**: partial removal of water from liquid food.

- **Lyophilization** (freeze-drying): consists of the drying of a previously frozen food. It is a process that allows the maximum conservation of the original quality of the food and its nutritional value.

Preservation through the use of additives

It consists of the addition of additives. These additives can be:

- **Natural origin**: vinegar, oil, salt, sugar, alcohol, etc.
- **Industrial origin**: This is one of the most commonly used food preservation techniques. It is used with the sole purpose of improving food characteristics such as lengthening shelf life, improving flavour, colour or texture. They are not used to fortify food with nutrients.

Conservation by irradiation

It consists of the application of ionizing radiation on the food (under strict control). It is a very effective method, as it prolongs the shelf life of food in the best conditions. Foods that have undergone the preservation process by irradiation must be labelled as follows.

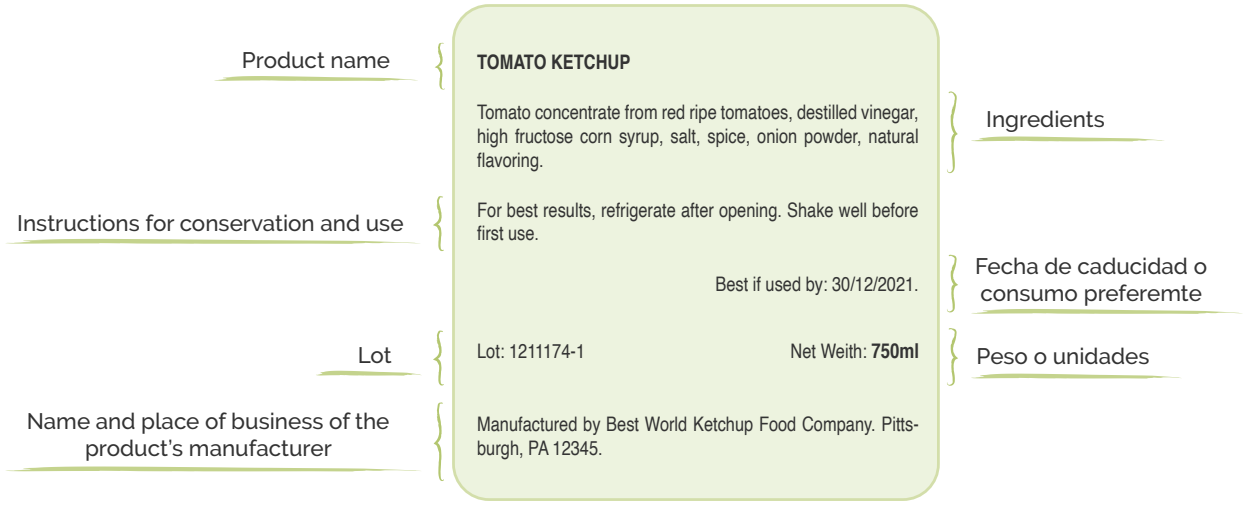
5.1 Food packaging and labelling

Once the food product is suitable, **it must be protected from possible external contamination** (from the environment, from the handler, from other foods...). Packaging, in addition to protecting the food, also has other functions such as: facilitating distribution and use (dosage).

The materials directly in contact with the food and with which it will be packaged **depend on the type of product**. They can be: plastic, glass, tinplate or aluminium. **The characteristics** of the containers that are in direct contact with the food must:

- Made of food-grade (non-toxic) materials.
- Do not transfer substances from the container to the food while it is being stored.
- Contain a label to give information about the product to the consumer.

The **LABELS** of the products must inform us of everything related to the food it contains, and must do so in a clear and legible manner.



Below we will explain the **requirements** for all products, although depending on the type of food this label may vary slightly:

- **Product name**: the name or how we know it.
- **Ingredients**: what makes up this product. They are placed in descending order by quantity.
- **Alcoholic strength**: if applicable.
- **Weight or units**: depending on how it is marketed. The net and gross quantity should be indicated if it contains liquid.
- **Instructions on how to store food**. There may be 3 cases:
  - Keep in a cool and dry place.
  - Keep refrigerated.
  - Keep frozen. Do not refreeze once thawed (re-freezing a product that has already been thawed once is prohibited).
- **Expiration or shelf life date**.
- **Company name** or **name of manufacturer** or packer and his address.
- **Lot**: code with which we could "track" that product in case of problems with it. These are products that are manufactured or packaged under similar circumstances.

The lot is very important, because it is related to the **TRACEABILITY** of a product. By traceability we mean the "ability to trace or reconstruct the life of a food from its origin to its sale to the final consumer".

This means knowing where the food has passed at all times, and if there is a problem, being able to remove the products in time, so that there is no foodborne disease.

It must be ensured that the consumer will see the label, that it will not be changed, and that products will not be sold without labels. There are practices that are not allowed with regard to labelling such as re-labelling products (this is considered fraud, as we may have changed data such as the expiry date...).

6. Personal hygiene of food handlers

In order to avoid risks that may arise, we must take into account different prevention activities that we as food handlers can and must carry out. One of the most important food handling rules is to maintain proper food hygiene and handling at the workplace, which we will explain in more detail below.

The food hygiene rules applicable to handlers would cover different areas, which means that the handler must take care of: health, personal hygiene, wearing the appropriate work clothes and maintaining hygienic habits when handling food.

Take care of your health

They should take care of their health, and **if they are ill they should inform their superior as soon as possible**, so that they can determine whether or not their seriousness may affect the food.

If we have nausea, vomiting, fever, diarrhea, severe skin conditions, or symptoms of a food-borne illness, we will not be able to perform our job on a temporary basis until you are fully recovered, and it is important that you be advised of this as soon as possible.

If you have cuts or wounds on your hands, they should be disinfected and then covered with waterproof bandages (or strips) that we will cover with gloves, so that they cannot fall off and fall into the food. This will prevent the micro-organisms in the wound from contaminating the food.

Personal hygiene

The most frequent **sources of transmission of microorganisms** are through the **hands**, **mouth**, **mucous membranes**, and **intestine**.

Therefore, a high degree of personal hygiene must be maintained, which includes at a minimum going to work in the shower (soap and water), having clean hair, brushing your teeth, and keeping your nails short and clean.

Appropriate work clothing

Work clothes should be exclusively for work and food handling, and should preferably be light-coloured. It should be clean and neat, and should not be taken out on the street or in places where it may become contaminated.

In the case of going out to other places, work clothes should be exchanged for street clothes.

The **hat or hairnet** should cover the hair completely to prevent it from falling on the food. It also helps us not to touch our hair and then touch the food... and both men and women should wear the hat or hairnet.

It is not allowed to carry **personal items** while handling food, so jewelry, earrings, watches, pendants, bracelets, rings, piercings, etc... will be removed before the start of the working day. This is explained by the fact that objects accumulate dirt that can be transferred to the food, can also fall into the food and reach the final consumer, and can even cause accidents at work due to being hooked up with them while working.

If gloves are needed for work, they should be kept clean and unbroken. Even if you wear gloves, you should also wash your hands before putting them on, and be as careful as if you did not wear them.

Hygienic habits when handling food

- Correctly wash food with plenty of water, especially fruits and vegetables, where it is recommended to wash them with specific products when they are to be consumed raw to ensure that bacteria and chemicals used in the growing process are eliminated.
- Do not leave food at room temperature for more than two hours.
- Prepare food shortly before eating or freezing.
- Reheat the plates to high temperature to eliminate possible bacteria.
- Eat the fish always cooked or after freezing.
- Eat the minced meat on the same day you buy it.
- Freeze food by portion to avoid freezing and thawing food several times.
- Wash knives and cutting boards thoroughly.
- Do not mix raw food with cooked food in the refrigerator.

- Do not thaw food at room temperature, it is best to thaw it overnight or the day before in the refrigerator or use the microwave to thaw food.

The right way to wash your hands

For proper food handling hygiene, one of the most important habits for treating food is proper hand washing. We have a large number of bacteria on our hands, which we can "pass" on to food, so if we wash our hands well and at the right time we will avoid a large number of food-borne diseases.

Wash your hands with hot water and bactericidal soap, rubbing well between your fingers, and with a hand brush clean between your nails. Then we dry with single-use paper and never with air.

Hand washing will be frequent and there are times when it is mandatory to wash your hands:

- **At the beginning of each working day** and every time you interrupt work.
- **After handling raw food** (to avoid cross-contamination).
- **Before handling cooked food** (to avoid cross-contamination).
- **After going to the toilet**.
- **After handling garbage** or food waste.
- **After using a tissue to cough**, sneeze, or blow your nose.
- **After we eat**.
- **After charging the customer**.
- **After smoking**.

Poor food handling practices

In order to guarantee the safety and hygiene of food handling, **certain practices must be avoided**:

- Smoking.
- Chewing gum.
- Eating at the workplace.
- Coughing, sneezing, or blowing into food.
- Touching your hair or scratching.
- Wear cloths hanging at the waist.
- Try food with your finger.
- Introduce dirty spoons of a different food.
- Clean only with water the utensils used to taste the food.
- Leave the cloths on the work tables.
- Leave utensils inside the recipients.
- Dry hands on apron or pants.
- Wear bracelets or rings.
- Wear long, painted or decorated nails.

7. General cleanliness and hygiene

We are talking about the **cleanliness** of everything that will surround the food, from the **utensils** to the **facilities**.

7.1 Hygiene standards for a catering or food-handling facility

Correct food hygiene and handling is essential in all catering or food handling premises, so it is essential to follow a correct cleaning and disinfection protocol.We clean because it can be dangerous due to the appearance of microorganisms, but we also do it to avoid the appearance of pests, since areas with bad cleaning favour the appearance of these animals.

All cleaning and disinfection is carried out to eliminate microorganisms and to avoid the appearance of pests.

We have previously advanced the most frequent ones: birds, insects, rodents... and for this reason we, as manipulators, can control that different PREVENTIVE MEASURES are fulfilled so that they do not appear:

- **Grilles in the drains**: check that they are well placed and that no animals can enter through them.
- **Window screens and mosquito nets**: they are there to prevent the entry of birds and insects, we must check that they do not have holes or are broken.
- **Bug zappers**: Fluorescent lights that attract insects, attract them to it and destroy them. They must be on.
- That all the **doors** are **properly closed** and have no small holes through which animals can enter.
- **Clean garbage cans** and **change the bag frequently**.
- **Do not leave doors or windows open**, **without protection**, to prevent the entry of birds, insects...
- **Order and cleanliness in the warehouses** (disordered areas can act as shelters for animals). Never placing food directly on the floor.
- **Carefully inspect the incoming merchandise** to ensure that no animals are being transported.

But if, despite these measures, we find any animal, we must notify external companies, approved by the competent authorities, so that they can destroy these pests. Under no circumstances will we be able to use products that we "find" to deal with this problem, since special methods and products must be used for each establishment and each animal.

With regard to the management of waste and residues, different aspects must be taken into account so that this area, which, a priori, will always be dirty, even if it is as clean as possible. This area is a major source of pollution that can attract pests, so to avoid risks, **all waste bins**:

- Buckets **must always be closed**, except when used.
- They will not be in areas with **high temperatures** or in the **sun**, to avoid the fermentation of the residues it may contain.
- They should be used **exclusively for garbage** and be **easily cleaned**.
- **They will have a lid** to prevent animals from entering (insects, rodents, etc.).
- They must be opened **manually** (with a pedal to open them), and never by hand.
- They should carry a **single-use plastic bag**, which should be evacuated at least once a day (in many cases more than once a day).
- **ALWAYS WASH HANDS** after handling garbage or waste.

7.2 Food handling equipment and utensils policy

In order to maintain proper hygiene in premises where food is handled, we must take into account hygienic practices for equipment and utensils:

- All utensils placed in contact with food should be **easily washable** and have no areas where dirt can accumulate. Therefore, **all wooden utensils are prohibited** (boards, ladles....), they could also chip and fall into the food, which would pose a danger to the consumer.
- **Clean and disinfected utensils should be stored in sterilizers**, they should not be left in the environment, as they will be recontaminated.
- The use of cloths or rags is not permitted, **disposable papers must be used**.
- **All parts of the machines we use must be easily removable** (so that they can be cleaned and no dirt or food remains can accumulate).

- As for the cleaning of the facilities, **dry sweeping is not allowed where food products are present**, as it can raise dust and cause it to fall into the food and contaminate it.

- **Cleaning products may not be stored near food**.

- The use of household cleaning products is not allowed, **special cleaning and disinfection products** according to our industry or establishment will be used instead.

- **It is not permitted to keep pets in handling areas**, warehouses or areas where foodstuffs may be present.

7.3 Cleaning and disinfection of utensils

The first thing is to differentiate between cleaning and disinfection. Is it the same? No. They are two different actions that must be taken together, and in this way we will obtain a correct sanitation in everything that surrounds the food.

Cleaning is the removal of all visible residues that may serve as food for microorganisms. If we just clean up we are not going to eliminate the microorganisms, which could grow on those surfaces.

In general, we would try to remove everything we can see, using hot water and detergents (according to the area to be cleaned, as each industry needs a specific type of cleaner). To do this, we will use utensils that will help us to remove this dirt (scourers, brushes, etc....).

Disinfection must be carried out after cleaning, and with it we will be able to eliminate or reduce to a great extent any microorganisms that may exist, up to limits that do not pose a risk of contamination of food.

To disinfect we will use chemicals such as bleach, water vapor with other products.... The steps we would follow for a good cleaning and disinfection would be:

- **Cleaning** everything we see (food scraps, various residues...) first dry and then help with hot water.

- **Application of the detergent** or product according to industry, rub until all the visible is removed.

- **Rinsed**.

- **Application of the disinfectant**.

- **Rinsing** (although some products must be left until the next day to work, and then rinsing, before starting work).

- **Drying** (with disposable paper).

8. HACCP self-control system and Regulation

The HACCP self-control system corresponds to the acronym Hazard analysis and critical control points.

This system is the one that allows us to identify, evaluate and control all those points that can be dangerous, as well as establish preventive measures to eliminate them and/or reduce them to acceptable levels.

Its compliance is REQUIRED by all food companies and its PURPOSE is to obtain safe food for the health of the consumer.

Each HACCP process will be specific to each food company, as it will be different depending on the food products to be handled or processed in the establishment.

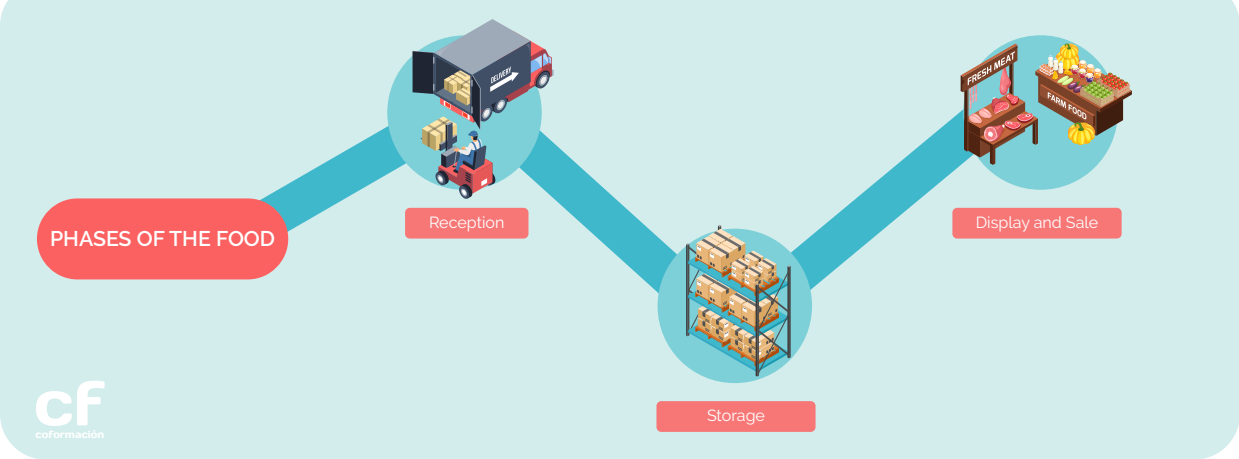
The success or failure of HACCP in food safety depends mainly on the involvement of all those involved in food handling. It is important that everyone is aware of its usefulness and knows what to do at each stage. The previous steps to follow for a correct execution of the system are: to form a HACCP team, to describe the product, to identify the expected use, to develop a flow diagram and to comply with the HACCP principles.

8.1 HACCP principles

Before starting to elaborate the HACCP process, a few STEPS must be followed for its correct implementation in the business:

- **Form a HACCP team**: a multidisciplinary team of people, trying to have people from all areas of the company, related to food safety.
- **Describe the product**: each industry or establishment is different, and we must know perfectly the product we have and define how it is, including from its ingredients, how it is prepared, which consumers it is aimed at, organoleptic characteristics, storage characteristics...
- **Identify the expected use**: identify the target end consumer, and how it will be used.
- **Developing a flowchart**: Once the product is defined it will be easy to make a flowchart summarizing the phases or stages it goes through.
- **Comply with the principles of the standard HACCP**.

To better understand the HACCP system we are going to assume that we are in an establishment selling products to the consumer, supermarket, hypermarket, and we are going to define the phases through which our food would pass:



8.2 Steps for implementing a Hazard Analysis and Critical Control Points system

Complying with the HACCP plan will allow us to obtain safe food and the process will be carried out with fewer errors. In this way, we will also improve the use of the processes and make economic savings. The principles of HACCP in the hospitality industry are to identify hazards, apply preventive measures, establish critical limits, a surveillance system and a control and registration system.

1. **Identify the hazards of each phase**: hazards can occur at every stage of the process. We must know what can happen in order to avoid it as much as possible. This way we would say which are the PCCs (critical control points) in our process.

2. **Apply preventive measures**: we must put in place measures that will prevent the emergence of dangers. E.g. in the storage of refrigerated food: always keep it refrigerated (0-5°C), do not leave open doors in cold rooms for long periods of time, do not exceed the storage capacity...

3. **Establish critical limits**: we must know what is the limit that we consider to be valid and from when this process has become a danger. E.g.: refrigerated food will have a temperature of 0-5°C (that is the limit), if we have a chamber at 6°C it will no longer be valid.

4. **Establish a monitoring system**: check that the preventive measures are carried out correctly.

5. **Establish corrective measures**: even if we do everything right, there may be a danger, and we must know what to do about it, and how to remove it as soon as possible. E.g. in the frozen food store we see that the temperature is -10°C, it is not correct, and the food is bad.

6. **Control and registration system**: everything that happens, or that we monitor, should be recorded to keep a record of what happens, and taken as proof that the controls have been carried out.

REGISTRATION EXAMPLE:

TEMPERATURE RECORDING OF COLD ROOMS				
Date	Freezer temperature	Refrigerator temperature	Incidents	Corrective measure
29/03/2021 08:00 AM Michael Brown	-0.4°F	50°F	High temperature in refrigeration room	The technician is notified for the repair. The product concerned is removed. Change the product room at the correct temperature.
29/03/2021	-0.4°F	Disabled (technician fixing)	-	-
29/03/2021	-19°C	3°C	-	-

9. Food Information Law (Allergens)

According to the 1169/2011 regulation, known as the Food Information Law (Allergens), since December, 2014, every food operator is obliged to report on the allergens present in its products through a system that allows them to be clearly identified.

9.1 What are the allergens I should inform about?

Although there are many possible allergens, only those containing any of the following 14 elements* are required to be reported:


1. Cereals containing gluten (wheat, rye, barley, oats, etc)


2. Crustaceans and products thereof


3. Eggs and products thereof


4. Fish and products thereof


5. Peanuts and products thereof


6. Soyabean and soyabean based products


7. Milk and products thereof (including lactose)


8. Nuts (almonds, hazelnuts, walnuts, cashews, etc.)


9. Celery and products thereof


10. Mustard and products thereof


11. Sesame seeds and products thereof


12. Sulphur dioxide and sulphites


13. Molluscs and products thereof


14. Lupin and products thereof

IMPORTANT: This list can be modified or extended by the European Union according to its own criteria, so it is necessary to be informed and updated about possible changes in this list.

Although it is not mandatory, it is recommended to inform about the possibility of traces or possible cross-contamination of allergens in our products.

9.2 Who must comply with the Food Information Law (Allergens)?

- Restaurants.
- Bars.
- Caterings.
- Hotels.
- Public canteens (schools, hospitals, etc.).
- Vending machines.
- And similar businesses.

9.3 What is the purpose of this regulation?

The purpose of the 1169/2011 Regulation is to respond to the need for specific legislation on food labelling and to oblige local authorities to provide consumers with all the information on the 14 allergens that can be found in the dishes and foods they offer.

9.4 Regulation on allergens

How can you inform about these allergens?

The regulations governing food allergens provide that information can be given in various forms, but what is required is to ensure high protection, i.e. the specific name of the allergen contained in the food (e.g. shrimp instead of crustacean or cuttlefish instead of mollusc).

Thus, the information can be found on labels affixed to pre-packaged food, labeled on posters or by other appropriate means (a menu or letter, or orally, or through a recipe book of the products sold in the establishment.

In any case, the information must be easily accessible to the consumer and may in no case entail additional costs. In buffets and self-service restaurants, information should be posted next to or

near the food on signs clearly visible to the consumer.

It is important to know that, although the information is provided orally, there must also be a record, either physically or electronically.

What happens if you do not comply? Possible sanctions.

Violations committed by companies that do not comply with food safety regulations are sanctioned with fines ranging from 5,000 to 600,000 €, and in the case of very serious violations, the competent public authorities may agree to close the establishment for a maximum of 5 years.

9.5 Labelling requirements

The European standard establishes the correct labelling regulation, indicating that it must be clear and legible. To this end, a minimum font size for the mandatory information of 1.2 mm is set. However, if the maximum surface area of a container is less than 80 cm^2, the minimum size is reduced to 0.9 mm.

If it is less than 25 cm^2, nutritional information is not mandatory. For packages with a larger surface area of less than 10 cm^2, there is no need for nutrition labelling or ingredient listing.

However, the name of the food, the presence of possible allergens, the net quantity and the date of minimum durability must always be indicated, regardless of the size of the package.

Similarly, it is also necessary to indicate allergens present in unpackaged foods sold to the final consumer.

9.6 Non-mandatory nutritional information

Unprocessed products that include a single ingredient or a single category of ingredients are not required to incorporate nutrition information on the label.

- Processed products whose only transformation has been to be cured and which include a single ingredient or a single category of ingredients.
- Water intended for human consumption, including water whose only added ingredients are carbon dioxide or flavourings.
- An aromatic plant, a spice or a mixture of them.
- Salt and salt substitutes.

- Sweeteners.
- Coffee extracts and chicory extracts, whole or ground coffee beans and whole or ground decaffeinated coffee beans.
- Herbal and fruit infusions, tea, decaffeinated tea, instant or soluble tea containing no added ingredients other than flavours that do not alter the nutritional value of the tea.
- Fermented vinegars and substitutes therefor, including those whose only added ingredients are flavourings.
- Flavours.
- Food additives.
- Technological adjuvants. Food enzymes. Gelatine.
- Marmalade thickening compounds.
- Yeast.
- Chewing gum.
- Food in packages or containers with a surface area of less than 25 cm2.
- Food, including artisanal foodstuffs, directly supplied by the manufacturer in small quantities to the final consumer or to local retail establishments directly supplying the final consumer.

9.7 Country of origin of the food

One of the new features of **European Regulation 1169/2011** is the **obligation to indicate the country of origin on the label**. Before this law it was only mandatory to indicate the country of origin of foodstuffs such as fresh beef, fruit and vegetables, honey, or olive oil. This law also requires fresh pork, sheep, goat and poultry meat to be labelled with the label of the country of origin of the food.

Implementing **(EU) 2018/775 regulation** became mandatory as of April 1st, 2020. The new provisions **aim to redress the error induced in consumers by the labeling of the country of origin of foods when the primary ingredient** (more than 50% of the food) **is obtained elsewhere**. If the country of origin differs from the origin of the primary ingredient, "the country of origin of the primary ingredient or an indication that it has a different country of origin from that of the food" must be specified.

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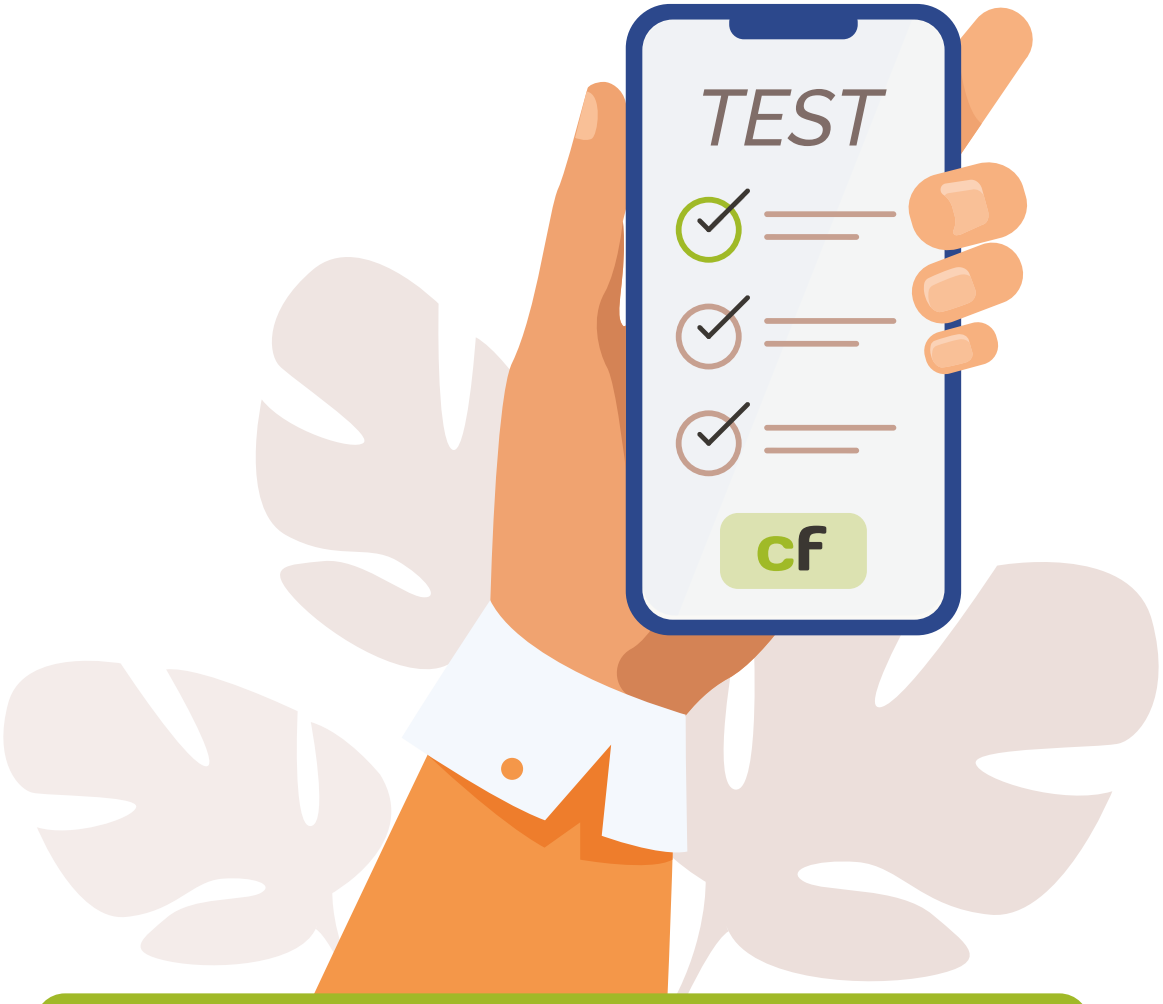

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