COURSE MANUAL FOR

FOOD HANDLER

COVID-19

Grupo Formación Magna
Tu centro de Estudios

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1. INTRODUCTION

1.1. OBJECTIVES OF THE COURSE

As laid down in Regulation (EC) No 852/2004 on the hygiene of foodstuffs, the obligations of food businesses include ensuring that **"the hygiene of foodstuffs is guaranteed".**
supervision and the instruction or training of food handlers in matters relating to food safety and hygiene.
food hygiene".

It is therefore essential that food handlers are trained and informed about hygiene rules and measures throughout the food handling process. This will enable them to apply these good practices in the relevant workplaces and thus ensure food safety and prevent the consumer from contracting possible diseases.

This course has as its **OBJECTIVES**:

- ✓ **To provide food handlers with the necessary knowledge** to know and be able to apply the correct guidelines in their workplace without difficulty, as the health of many consumers depends on them and they can prevent food-borne illnesses.

- ✓ **To raise awareness of the importance of following and complying with these good practices throughout the** food chain, and of the repercussions that non-compliance can have, as the business operator has the primary responsibility for food safety.

With this course you will obtain your certificate as a food handler, which will certify that you have obtained the necessary knowledge to be able to work responsibly in the food sector.

Our Food Handler Certificate is valid throughout Spain. It is regulated training according to **Royal Decree 109/2010** and **EC Regulation 852/2004**. Therefore, it is valid in all communities and provinces.

1.2. DEFINITIONS

Food handler: a person whose work involves direct contact with food during its preparation, manufacture, processing, preparation, packaging, storage, transport, distribution, sale, supply and service.

Food hygiene: The set of measures we take to ensure that food is safe (does not cause illness) and retains its nutritional properties. We will take measures to prevent hazards by eliminating them or reducing them to acceptable levels so that they do not cause harm (i.e. to reduce risk). These measures will include requirements such as cleaning, disinfection, design of the installation, choice of materials, lighting, ventilation, handler's clothing, good practices...

2. ALTERATION AND CONTAMINATION OF FOODSTUFFS

2.1. Types of food

DIFFERENCE BETWEEN ALTERED, CONTAMINATED, CONTAMINATED, NOXIOUS AND ADULTERATED FOOD

In this section we will classify foods according to their conditions of consumption:

a. Harmless: Food that does not produce harmful effects on the health of consumers.

b. Harmful: Foods that have a negative effect on the health of the consumer, either at the time of consumption or after repeated ingestion. This is because their content of toxic substances, or the presence of pathogenic organisms or micro-organisms in the food is higher than the permitted limits considered safe and suitable for consumption.

c. Perishable foodstuffs**:** These are foodstuffs that, in order to maintain most of their properties, require special handling, conservation, storage and transport conditions.

d. Altered: Has undergone, through no deliberate cause, variations in its organoleptic characteristics such as smell, taste, or texture, or in its chemical composition or nutritional value. Their nutritional properties are diminished or nullified, although they remain harmless.

e. Contaminated: Those that contain elements that can cause a significant alteration with a risk to health (produce or transmit diseases).

f. Adulterated: is one that has been modified by man, altering its characteristics, for example by deliberately adding or removing some substance for fraudulent purposes and has been modified to vary its composition, weight or volume, or to cover up some defect.

2.2. Definition of food contamination

We can define a food contaminant or food hazard as any "thing" that is in the food and should not be there, i.e. any agent foreign to the food capable of negatively altering the health of the person consuming it.

Contaminated food is not detectable to the naked eye, neither by smell, taste nor appearance, which makes it more dangerous.

Food contamination does not only depend on the establishment where the product is produced, but can also come from the handlers of these products, as well as from the manufacturing processes used, i.e. it can occur at any stage of the production process.

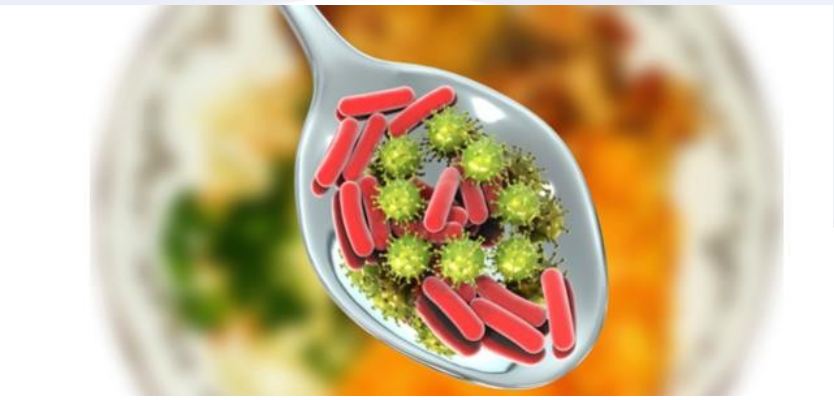
The presence of these hazards can occur naturally (e.g. worms inside fruit, or among vegetables...), or accidentally (hair in soup, flies in salad, wrapping residues in prepared food...), and this depends on the food handler.

2.3. Type of pollution

a. Chemical: produced by chemical substances, which may reach the food by chance, or may be present in it due to incorrect handling. For example, cleaning and disinfection products, insecticides, medicines, heavy metals, pesticide residues, etc.

b. Biological: caused by the action of living beings that contaminate the food, for example insects (flies, cockroaches...), rodents (rats and mice), birds (pigeons, sparrows, seagulls...), parasites (worms, weevils...), or microorganisms (bacteria, viruses, parasites, fungi, etc.). Sometimes these do not visibly alter the food, do not change its colour, smell or texture, and therefore do not arouse suspicion and can cause illness.

c. Physical: produced by the presence of substances foreign to the food and visible to the human eye: feathers, stones, plastic, pieces of bone, bones, thorns, shells, staples, wood, broken glass, pieces of gloves, plastics, plastics, band-aids, etc.



2.4. Pollution pathways

Contamination can occur by different routes, which are detailed below:

Cross-contamination: This is the transfer of contaminants from one food to another, either by mixing raw and cooked food or by the use of the same utensils or through the hands of the food handler.

Contamination of origin: Contamination that is already in the food and is due to the effect of environmental toxins, agricultural pollutants or livestock products, contaminated soil, sewage. Food may already be affected at source.

Contamination by handling. This is undoubtedly one of the highest risks, as the food handler is the greatest risk factor in food contamination due to their continuous contact with food. Hygiene in general and good food handling practices are essential to minimise risks as much as possible.

2.5. Sources of pollution

The table below details the most common sources of food contamination that can be found, so that they can be prevented:

The people	People normally carry bacteria in their bodies. They can be in the mouth, nose, intestine, hands and skin. They are most often found on dirty hands, saliva of sick people, wounds (scratches, scrapes).
Animals	They carry high microbial loads on the skin, respiratory tract, mucous membranes and intestinal tract.
Plants	They provide micro-organisms with all the elements necessary for their growth. They receive contamination from the soil, irrigation water, animals and insects, and the handlers and tools used in their processing.
Water	The use of contaminated water for cleaning, processing and preservation of foodstuffs would lead to irremediable contamination of all processed products. The water used must always be potable.
Waste water	The use of untreated wastewater for crop irrigation is a source of pollution. This water if discharged into rivers or seas transmits its pollution to fish and shellfish as well as contaminating soils.
The air	Air itself is a hostile environment for micro-organisms, but it can become an excellent dispersal and transport medium for them, especially through air currents. In air, micro-organisms only remain suspended until they reach the substrate where they find the conditions to multiply.
The soil	It is composed of many nutrients, which favours the proliferation of micro-organisms and parasites.
Manipulation and treatment	Food can receive micro-organisms from: equipment and machinery, packaging materials, handler.
Pests	Pests carry germs and dirt on their legs and bodies. They are always where there is food and rubbish. Remember that they live in sewers, drains, decomposed matter, faeces, so they are an important source of food and waste. important source of contamination. The main ones include cockroaches, pigeons and rodents.
Waste	Waste receptacles are a very important source of waste and are a contamination as they are left for several hours at room temperature. This favours the development of micro-organisms, thus attracting insects and rodents. Flies, cockroaches, rats, wind and wind can cause the rubbish to reach the food that has been prepared, thus contaminate it.
Raw food	Raw food is a source of contamination, usually contaminated with bacteria and parasites. Special care should be taken with red and white meat, fish and seafood, eggs and milk. raw.

2.6. How to tell if a food is contaminated

Contaminated food does not always show obvious signs of spoilage. In the case of packaged food, we can be guided by the expiry date indicated on the packaging. If the food is out of date, the safest option is to discard it, as even if it is apparently in good condition, it may have started its natural spoilage process.

Meat: The most obvious signs of contamination in meat are: green or brown colouring, putrid smell or slimy texture. In the case of poultry, a slimy film on the skin and meat, together with an unpleasant odour, is the most common.

Fish and shellfish: Fresh fish will have reddish gills, eyes of the same colour and bulging, full and shiny scales and reddish gills. An indicator of not being fresh is when the scales are too easily removed, gills dark and brownish in colour, eyes sunken and opaque.

Dairy and eggs: In the case of eggs, a good way to find out quickly and without the need to spend time checking is to fry or crack them open in a container. If the yolk is in good condition, it will remain centred in the centre of the white and whole. Another very reliable way is to immerse them in salt water: if it sinks, it is fresh, if it floats, it means it is in bad condition.

Spoiled milk has a yellowish or greenish colour and a sour taste. Bad cheeses are green or brown in colour, have an unpleasant odour and a slimy coating, and may sometimes have fungus.

Fruits and vegetables: The most obvious signs of contamination on fruits can be: fungus, pieces that are too soft, presence of flies around or the covering of the fruit with a slimy film.

2.7. Most common situations for food to become contaminated

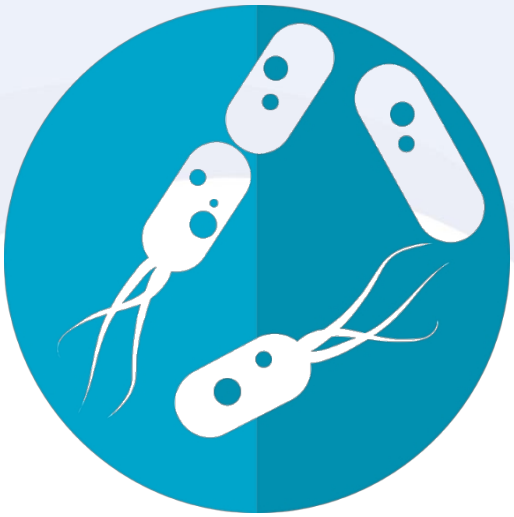
✓ Storage of food at room temperature. ✓ Insufficient refrigeration
✓ Interruption of the cold chain. ✓ Incorrect handling
✓ Poor hygienic conditions of premises and utensils.
✓ Insufficient cooking.

You should know that cooking, refrigeration and freezing as well as hygienic handling are the most important preventive measures to avoid food contamination and proper food preservation.

3. FACTORS FAVOURING THE GROWTH OF MICRO-ORGANISMS

A foodborne illness is any illness contracted through the spoilage of contaminated food.

During the food processing cycle, many disease-causing organisms can infect and contaminate food, so before we talk about diseases, let us know what micro-organisms are and how they act, as they are one of the most frequent causes of foodborne diseases.



3.1. Definition and typologies of micro-organisms

Micro-organisms, also called germs or microbes, are living beings so small that they cannot be seen with the naked eye, they can only be seen through a microscope. Lacking arms, legs or wings, they move from one place to another through people's hands, fingernails, clothes or also through objects, domestic animals, insects, rodents...

They can be found in any place, soil, plants, air, water, clothes, skin... and are capable of developing and multiplying in any environment that meets the right conditions, which is why it is necessary to know them and the factors that favour their reproduction.

The classification of micro-organisms is detailed below:

- ✓ **Beneficial:** these are micro-organisms used in the manufacture of some products as they protect our organism. They are used to make food, such as lactic acid bacteria in the production of yoghurt, cheese or butter.

- ✓ **Alterants:** Altering microorganisms modify the appearance of the food, causing bad smells or flavours, or changing the colour of the food. In this case, the food does not have to be harmful to the consumer, but we will not use it if it has an unpleasant appearance and thus ensure that it does not harm the consumer.

- ✓ **Pathogens:** pathogenic micro-organisms are the most dangerous, as they do not modify the food but contaminate it, and therefore cause illness when consumed.

3.2. Factors favouring the growth and reproduction of microorganisms

The main factors contributing to bacterial growth will be those specific to each food, and will depend on the intrinsic characteristics of the food and the external characteristics of the environment in which the food is found, also known as extrinsic factors.

It should be noted that micro-organisms may be in food from its origin due to its characteristics or may have been contaminated during food handling.

<table>
<tr><th colspan="2">INTRINSIC FACTORS (characteristics of the food)</th></tr>
<tr><td>Nutrients</td><td>Microorganisms need nutrients to grow, specifically carbohydrates, fats, proteins, vitamins and minerals, and human foodstuffs contain excellent sources for their growth.</td></tr>
<tr><td>Ph and Acidity</td><td>The pH is used to measure the acidity of a medium. In general, pathogenic bacteria (the most dangerous ones) prefer a neutral pH (≈7) such as that of water.
Acidic pH (below 7) prevents the growth of micro-organisms. A traditional cooking practice for food safety is to add lemon and vinegar, as they act by lowering the pH and thus hinder microbial growth.</td></tr>
<tr><td>Amount of water in the feed</td><td>Like us, bacteria need water to live, and food, because of its high water content, is an ideal medium for bacterial growth. Remember that in dehydrated food the bacteria do not grow, but they do not die either, so when they are rehydrated they can grow and multiply, contaminating the food.</td></tr>
<tr><th colspan="2">EXTERNAL FACTORS (characteristics of the environment)</th></tr>
<tr><td>Oxygen level</td><td>Some organisms need the presence of oxygen in order to live or develop, they are called aerobic or aerobic.</td></tr>
<tr><td>Temperature</td><td>Most micro-organisms grow at temperatures between 5ºC and 60ºC. When food is frozen below -18°C, microorganisms stop growing but do not die. At refrigeration temperatures (0-5°C) they multiply but very slowly. So, we must always remember that heat above 80ºC kills micro-organisms completely and that is why it is necessary to cook them well. The zone between 5ºC and 65ºC is considered a danger zone.
<table>
<tr><td></td><td>Freezing< -18 ºC</td><td>No growth</td></tr>
<tr><td></td><td>Refrigeration0 ºC - 5ºC</td><td>Grow slowly</td></tr>
<tr><td>Growth zone</td><td>- 65ºC - 65ºCGrowing</td><td>rapidlyHot</td></tr>
<tr><td></td><td>65ºC- 80ºC - 80ºCGrowing</td><td></td></tr>
<tr><td></td><td>slowly</td><td></td></tr>
<tr><td colspan="3">Microbial death zone> 80ºC Die</td></tr>
</table></td></tr>
<tr><td>Humidity</td><td>The aw (amount of water in the feed) tends to equalise with the humidity of the environment.</td></tr>
<tr><td>Weather</td><td>Together with the previous ones, it is the most important cause of proliferation, the longer the
more likely to reproduce.</td></tr>
</table>

Temperature is one of the main parameters for controlling the growth of pathogenic bacteria responsible for food poisoning. Good temperature control is synonymous with increased safety. This is why heat treatments are sometimes added, supplying heat in a controlled manner to destroy them.

3.3. High- and low-risk foods for contamination by microorganisms

Depending on the intrinsic and extrinsic factors to which the food is exposed, it can be largely determined whether bacteria survive and proliferate more or less easily or, on the contrary, whether they find it more difficult to establish themselves. Therefore, foodstuffs have different degrees of microbiological risk, depending on their characteristics and particularities.

HIGH RISK foods to be contaminated by microorganisms:

These have the necessary conditions that favour the growth of bacteria such as: high water activity, low acidity, high protein content, no further treatment such as heating before consumption...

- ✓ Eggs and foods containing eggs (mayonnaise, salads, etc.). For this reason it is forbidden to use raw eggs.
- ✓ Milk and unpasteurised milk products✓
Custards and desserts with milk and eggs
- ✓ Minced meats, as they have more surface area in contact with air than whole meat. ✓ Red meat, poultry and fish.
- ✓ Raw meat, fish and shellfish.
- ✓ Cooked foods that are consumed cold or reheated.
- ✓ Baked goods containing creams and creams.
- ✓ Cut melons and other low-acid fruits kept at room temperature.

Preventing risks in this type of food involves maintaining strict handling, preparation and conservation measures, as well as adequate cleaning, hygiene and temperature conditions. It is also essential to keep raw food away from cooked food to avoid cross-contamination.

LOW RISK foods to be contaminated by microorganisms:
(Under proper handling and storage conditions)

Pathogens have more problems to survive in this type of food because they are drier or more acidic and therefore more resistant because they are more stable at room temperature. The risk in these foods has more to do with poor handling practices than with the characteristics themselves.

- ✓ Bread, biscuits, cereals
- ✓ Nuts: walnuts, almonds, hazelnuts...✓
Smoked or salted foods
- ✓ Acidic foods such as vinegar or foods with a high sugar content such as jam✓ Unopened preserves

It should be noted that there is no such thing as zero risk; these are only products which, due to their low water content, are considered to be of **low**, but not zero, **health risk.**

4. FOOD-BORNE DISEASES

4.1. Definition

Foodborne diseases (FBD) are those known as foodborne infections and food **poisoning**, caused by agents that enter the body using food as a vehicle. They are caused by the consumption of food contaminated with pathogenic micro-organisms (bacteria, parasites or viruses) or the toxins produced by them, by chemical or physical agents.

Infection: Occurs when we consume food contaminated with disease-causing germs, such as bacteria, larvae or eggs of some parasites. E.g. Salmonellosis.

Poisoning: These occur when we consume food contaminated with chemicals, toxins produced by some germs, or with toxins that may be present in the food. E.g. Botulism.

4.2. Major food-borne diseases

Micro-organism	Disease and effects	Focuses of pollution	Sensitive foods	Prevention
Salmonella	**Salmonellosis** High fever, abdominal and abdominal pain and headache, diarrhoea.	Intestine of humans and animals	Meat (poultry), milk, eggs and egg products, mayonnaise, raw food.	Cooking food properly and maintaining good cooking and holding temperatures refrigeration.
Staphylococcus aureus	**Staphylococc us poisoning** Cramps, diarrhoea, vomiting and rashes on the skin.	Infected nose, throat, skin, hair, wounds and pimples of the nose, throat, skin, hair, wounds, and pimples of the manipulators.	Ready meals and bakery products.	Excellent personnel hygiene and good handling practices.
Clostridium botulinum	**Botulism** Diarrhoea, nausea, vomiting, paralysis and even death	Dust, soil, water, animal intestines (only grows when it does not there is oxygen)	Poorly processed homemade and industrial canned food.	Treatment approp riate heat treatment. Discard any canned product found to be bulging before opening.
Listeria monocytogenes	**Listeriosis** Diarrhoea, nausea, skin rashes, malformations in the foetus	Dust, soil, dirt in general.	Cheese, raw products. (Pregnant women cannot eat sausages because of their risk of Listerosis).	Heat treatment, good handling practices and proper personnel hygiene. Storage at appropriate temperature.
Escherichia coli	Abdominal pain and diarrhoea.	Water and bad manipulation of foodstuffs	Minced meat, milk and non-potable water.	Proper hygiene and heat treatment adequate.

4.3 Most common symptoms of foodborne diseases.

In short, they a r e : general malaise, vomiting, stomach pain. Although some of the more

dangerous ones can cause serious injuries and even death.

5. FOOD PRESERVATION AND STORAGE

5.1. Conservation methods

Food preservation is a set of procedures and resources for preparing and packaging food products in order to store and consume them for a long time, and to prevent the action of contaminating agents that may contaminate them and alter their original characteristics (smell, taste, appearance).

Different methods are often used for the preservation of foodstuffs.

5.1.1. Temperature-changing preservation methods

Heat preservation:

Blanching: Brief cooking of vegetables for later dehydration or freezing.

Pasteurisation: temperatures below 100ºC, around 80ºC, are applied for a few seconds. Microorganisms are destroyed, but their spores and enzymatic activity are not eliminated, so pasteurised foods must be kept refrigerated and their shelf life is relatively short.

Cooking: Bringing a food to a boil or boiling means that it is at around 100ºC. With this method we eliminate a large part of the microorganisms but not their spores.

Sterilisation: high temperatures (120ºC) are applied for a long period of time (20 minutes).

Uperisation (U.H.T.): very high temperatures (140ºC) are applied for a very short time (2 seconds). Eliminate all microorganisms and their spores, and make the food suffer as little as possible.

Cold storage:

Refrigeration: the food is kept at low temperatures (between 0 and 8ºC approx.) without freezing. It reduces the speed of chemical reactions and the proliferation of microorganisms.

Freezing: the temperature applied to the food is below 0°C, causing part of the water in the food to turn to ice. It is important to freeze in the shortest time and at a low temperature, so that the quality of the product is not affected; the optimum temperature is - 18°C or lower.

Ultra-freezing: the food is subjected to a temperature between -35 and -150ºC for a short period of time.

5.1.2. Preservation methods that reduce water content

Dehydration: process by which water is removed from a food by evaporation, by air currents or by contact with hot surfaces.

Drying: is a partial loss of water under natural environmental conditions or with a gentle heat source and air currents.

Concentration: partial elimination of water in liquid food.

Freeze-drying: consists of drying a previously frozen food.

5.1.3. Chemical preservation methods

Salting: this is based on the addition of more or less abundant salt, in such a way that the salt captures the water, causing the food to dehydrate. This prevents the proliferation of micro-organisms.

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 micro-organisms, but also stabilises the red and pink colour of the meat.

Smoking: consists of subjecting food to a source of smoke from fires made of wood with a low level of resin. In addition to giving smoked flavours, it serves as a preservative, extending the shelf life of the food.

Acidification: a method based on the reduction of the pH of the food, which prevents the development of micro-organisms. Example: vinegar.

By means of additives: of natural origin (vinegar, oil, sugar, salt, alcohol) or of duly authorised industrial origin (preservatives and antioxidants).

- **Escabeche:** this is a combination of salt and vinegar, providing a characteristic flavour and adequate preservation. The vinegar provides its preservative action thanks to the acetic acid, and the salt dehydrates the food.
- **Addition of sugar:** when carried out at high concentrations, it favours the protection of food against the proliferation of micro-organisms. This process is carried out in condensed milks, jams, compotes, etc.

5.1.4. Preservation methods by specific packaging

Vacuum packaging: this method is used for

in plastic bags designed for this purpose and as much air as possible is extracted. In addition, the food can then be refrigerated or frozen.

Modified atmosphere packaging: the air surrounding the food is replaced by a gas or mixture of gases. The most commonly used gases are oxygen, nitrogen and carbon dioxide, which produce an individual or combined effect to maintain the quality of the food.

5.2. Packaging

Within the concept of packaging it is important to distinguish between packaging and wrapping:

Packaging: container intended to hold foodstuffs.

Packaging: material used to protect the packaging or to group one or more packages for transport and to protect them from knocks, shocks,...

The fundamental requirements that a container must meet are:

- ✓ Containment.
- ✓ Protection and conservation.
- ✓ Communication.
- ✓ Ease of manufacture. ✓
  Ease of use.

The main function of food packaging is to protect and preserve food from external contamination. This function includes delaying spoilage, extending product life, and maintaining the quality and safety of the packaged food. To this end, packaging protects food from environmental factors (heat, light, humidity, oxygen, pressure, false odours, micro-organisms, insects, dirt), other foodstuffs, shocks...

Food contact packaging shall comply with the following requirements:

1. Packaging shall be carried out under satisfactory hygienic conditions.

2. The materials used for packaging shall not alter the organoleptic characteristics of the food, shall not contain substances harmful to health and shall be sufficiently resistant.

3. They may not be reused (unless an exception is made).

4. Packaging and wrapping material that is not in use should be stored in a protected area away from the production area.

5. They shall be labelled to inform the consumer about the product.

Packaging may be classified according to material:✓ Plastic

packaging (synthetic or biodegradable).
- ✓ Glass containers.
- ✓ Paper and cardboard
  packaging✓ Aluminium
  packaging.
- ✓ Tinplate containers
- ✓ Others: composite (laminated) packaging, active and intelligent

packaging... The main packaging techniques are:

- ✓ Traditional packaging.
- ✓ Vacuum packaging.
- ✓ Controlled Atmosphere Packaging (CAP). ✓
  Modified Atmosphere Packaging (MAP).

5.3. Tagged

Food labelling is currently regulated in Spain by Royal Decree 1334/1999, of 31 July, which approves the General Labelling Regulations.

The label is one of the means of food safety control and cannot mislead either in composition or presentation.

The indications to be marked on the labels are as follows:

Sales description: indicates the type of product.

List of ingredients: details the components of the product, from the highest to the lowest proportion.

Company identification: the name, business name and address of the manufacturer or packer.

Net contents: the quantity of product contained in the package, expressed in units of volume for liquid products and in units of mass for other products.

Best-before date or date of minimum durability: for highly perishable products, the "best-before date" indicates the day and month by which the product should be consumed. For semi-perishable and shelf-stable foods, the legend "best before..." is followed by a date indicating the maximum period for which the optimum quality of the product is guaranteed, if the product has been kept under appropriate storage conditions.

Special conditions for storage and use: whenever the product requires special conditions for storage and use, in order to ensure optimal maintenance and consumption of the product, these should be indicated on the label.

Directions for use: indicates how to prepare and combine the product for optimal consumption, if necessary.

Batch: the indication (usually numerical) which makes it possible to identify the lot to which a foodstuff belongs. Lot means a set of sales units of a product, produced, manufactured or packaged under virtually identical circumstances.

Place of origin: Country of origin, mandatory for non-EU products. For products originating in the EU, only mandatory if its omission is likely to mislead the consumer.

For **NON-PACKAGED PRODUCTS,** only ingredients or technological adjuvants that may cause food allergies and intolerances must be indicated, and they must be accompanied by the corresponding health documentation.

Meat: they bear the stamp of the veterinary inspection of the slaughterhouse and this stamp must be maintained until the final sale of the piece.

Rabbits and poultry: bear the veterinary inspection mark.

Live or fresh **molluscs**: shall be in yellow mesh with a label guaranteeing purification.

5.4. Storage

The main rules to be complied with during the storage of foodstuffs, in order to avoid affecting the health of consumers are:

- ✓ It is important to check that **the containers and packaging** of the food received are in good condition, that **the labelling** is perfectly readable, to pay attention to the best-before and best-before dates, to the specific conditions of use and conservation and also to the presence of allergenic elements in each product.
- ✓ During storage, processed food shall be stored separately from raw food (to avoid cross-contamination). Leftovers should be transferred to covered (plastic) containers, indicating their corresponding date. Periodically check expiry and best-before dates.
- ✓ Avoid direct contact of foodstuffs with the **floor or walls**. ✓ Allow

air circulation between stored products. ✓ Do not leave food near

rubbish or unsuitable food.

- ✓ It is important to separate **products that may contain allergens** from those that do not, especially if the former are not in completely sealed packaging.
- ✓ Food storage should have **sufficient capacity** (do not overload).
- ✓ The **temperature** must be adequate. The temperatures in the chambers are controlled daily, to ensure that the temperature ranges are respected in the different chambers, depending on the product.
- ✓ **Easy to clean** and disinfect.

Storage can be set according to the temperature required by the food:

DRY STORAGE: This area is where dry foods such as canned foods, cereals, flour, sugar, biscuits, tea, coffee and other non-perishable foods are stored. It should be kept in a dry place at a temperature of 20°C - 30°C.

REFRIGERATED STORAGE: All perishable foods, especially high-risk foods (dairy products, cooked meats, fish and poultry) should be stored refrigerated to avoid contamination by harmful bacteria.

Refrigeration at temperatures below 5°C inhibits the growth of most pathogenic bacteria but does not kill them, therefore refrigerated rooms will maintain temperatures between 2.5°C and 5°C and will not kill them.
°C to 6°C.

FROZEN STORAGE: Frozen foods need special attention, as the fact that they are frozen does not guarantee their total safety. The ideal temperature for frozen storage is between 0°C to -18°C.

6. HANDLER HYGIENE

Good hygiene habits help to prevent food-borne diseases. The following are some of the measures to be taken into account as a food handler.

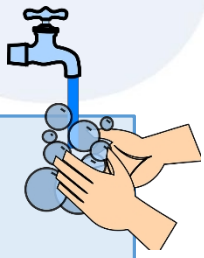
6.1. Personal hygiene

We refer to the hygiene behaviours or habits that we carry out on our bodies:

- ✓ Bathe and wash your hair daily and preferably before activities✓ Brush your teeth after every meal.
- ✓ Keep nails trimmed, clean and free of nail polish.
- ✓ Always wash hands before starting work and whenever circumstances require it (see box).
- ✓ Men shall keep their hair short and shave their beards daily. Women should tie their hair back with a cap, hairnet or bonnet.
- ✓ No jewellery, bracelets or watches

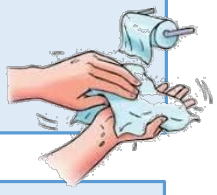
The hands, mouth and nose are parts of the human body to which special attention should be paid when handling food, as they are the most frequent sources of transmission of micro-organisms in our body. Special care should also be taken with **cuts or wounds**.

6.1.1. HANDS



How should hands be washed?

- ✓ Wet hands and forearms with warm water to open pores.
- ✓ Lather from elbow to fingernails with liquid soap, rubbing hands together meticulously.
- ✓ Brush the nails.
- ✓ Rinse them well with cold water to close the pores, taking care not to leave any detergent residue.
- ✓ Dry them with a disposable paper towel or air dry.



When should hands be washed?

- ✓ Before starting work.
- ✓ After using the toilet facilities. When changing
- ✓ activities.
- ✓ After touching hair, nose, mouth, etc.
- ✓ After handling raw foods such as meat, poultry, fish, eggs or other potentially hazardous foods.
- ✓ After handling rubbish, money, cleaning materials or chemicals. And whenever
- ✓ circumstances require it

If gloves are worn, which in many cases are compulsory, they shall be kept clean and unbroken. Even if gloves are worn, hands should be washed before putting them on, and the same care should be taken as if they were not worn.

In the case of **cuts and wounds** on the hands, they should be covered with bandages, gauze, sticking plaster or plasters, but these in turn should be perfectly protected with a waterproof dressing (gloves, thimbles, etc.), which should always be kept clean.

6.1.2. Mouth and nose

A type of bacteria called Staphylococcus aureus is found in the mouth and nose of 40-45% of people. Staphylococci are very easily spread by talking, coughing or sneezing, and are the cause of many food-borne infections.

Therefore, the following measures should be taken:

- ✓ Avoid coughing and sneezing on food.
- ✓ Avoid talking directly over food
- ✓ Do not eat sweets, chew gum or smoke while handling food. ✓ Do not taste food with your finger.

6.2. Work clothes

- ✓ Working clothes shall be light-coloured, and shall be kept separately from street clothes.
- ✓ Uniforms shall always be clean and in good appearance. They shall be washed in hot water to destroy micro-organisms.
- ✓ Work clothes shall only be used at the workplace and for handling food, and shall not be worn outside or in other places, as they may become contaminated.
- ✓ Footwear must be suitable (safety) and non-slip and must be kept separate from street clothes. Street shoes may not be used, they must be specific for the job.
- ✓ Work clothes must be fully fastened.

Remark: Each handler must have at least 2 changes of clothes in order to keep his uniform in hygienic conditions on a daily basis.

6.3. Health

The food handler must inform his superiors if he suffers or has symptoms of any illness that may cause contamination of food, such as vomiting, diarrhoea, ear discharge, runny nose, coughing or watery eyes, skin conditions... and must not come into contact with food until it is completely cured or until it stops killing germs.

6.4. Practices to consider

The following practices shall be observed in the workplace:✓ No

smoking, eating or chewing gum while on duty.

- ✓ Do not comb the hair
- ✓ Do not blow your nose
- ✓ Do not talk or cough over food. ✓ Wash hands after using the toilet.
- ✓ Do not touch food directly with your hands, use spoons, tongs...

✓ Do not touch dirty objects and then handle food or clean objects✓
Work in clean uniform
✓ Do not wipe off sweat with the uniform or work cloth.
✓ Do not eat food with your hands or with the same utensil✓ Keep lockers in changing rooms clean.
✓ Do not leave the work premises in work clothes.

6.5. Manipulator's attitude

Food handlers must at all times maintain hygienic habits and attitudes to ensure the safety of the food they prepare. To this end, they must:

✓ Comply with the personal hygiene rules mentioned above: hand washing, hair protection, isolation of wounds, personal hygiene, hygienic attitudes in general, appropriate and clean clothing.
✓ Keep their work station clean and tidy, as well as their tools and equipment in good condition. ✓ Report any anomaly that may alter the hygienic quality of the food.

7. CLEANLINESS AND HYGIENE

Establishing good food hygiene and handling standards and practices will significantly reduce the growth of germs and contamination of food, and thus prevent food-borne illnesses.

- ✓ Facilities where food is received, prepared and dispensed must provide hygienic safety and security.
- ✓ They should be designed to promote and facilitate both personal hygiene and the cleaning and disinfection of premises and equipment.
- ✓ We must know the FLOW DIAGRAM to avoid cross-contamination.

7.1. Cleaning and disinfection

First of all, we must distinguish between the two concepts of cleaning and disinfection,

Cleaning: Removal of dirt and organic residues using water and detergents. Products should be stored in original closed and well labelled containers in dedicated areas away from storage and processing areas.

Disinfection: This consists of eliminating bacteria that we cannot see. It is always carried out after cleaning. Only duly authorised disinfectants should be used.

Cleaning and disinfection products for equipment and working utensils shall be stored in a separate sector from the food storage area and shall be tidy, clean and with the products properly labelled.

To carry out the cleaning and disinfection process, the correct steps must be followed:

- ✓ First of all, remove the most visible dirt.
- ✓ Rinse with warm water.
- ✓ Apply a detergent product according to the instructions for use. ✓

Rinse with plenty of water.

- ✓ Apply a disinfectant product in accordance with the instructions for use. ✓ Rinse if required by the product used.
- ✓ Dry if necessary depending on the type of product and surface.

7.1.1. Premises

- ✓ Cleaning of floors and walls shall be carried out when food is not being handled. No dry sweeping to avoid raising dust. ✓ Do not store food with cleaning products.
- ✓ Net separation between areas and perfectly separated and without direct communication with living quarters, kitchens or dining rooms.
- ✓ Doors and windows easy to clean and unalterable material. Protected openings to the outside (mosquito nets, etc.).
- ✓ Adequate and sufficient ventilation.

- ✓ Dampness, dust deposits or any other cause of unhealthy conditions shall be avoided.
- ✓ Adequate drains and good outlets for liquid discharges. Drains should be hydraulically sealed and protected with gratings or perforated metal plates. Sufficient and protected lighting.
- ✓ Smooth, fire-resistant, light-coloured ceilings with curved edges and easy to clean. ✓ Smooth, waterproof, light-coloured, easy-to-clean walls.
- ✓ Waterproof, non-slip, easy-to-clean floors, with slopes to drains and rounded corners.
- ✓ Use walkways only.
- ✓ Changing rooms and toilets should not communicate directly with workplaces and should be well equipped.

7.1.2. Equipment

- ✓ Food preparation utensils and surfaces should be properly washed (and disinfected) before and after use, especially when using raw food.
- ✓ The **machinery and equipment** used must be dismountable so as to allow for a perfect state of cleanliness.
- ✓ **Work surfaces** should be made of smooth, easy to wash and non-toxic materials. Cutting boards should be made of polypropylene (wooden boards are not recommended). The place where equipment and utensils are stored should be clean and protected from all sources of contamination.
- ✓ Cloths or rags are not allowed, single-use paper should be used instead.

7.2. Waste and waste management

- ✓ Food waste and other refuse must be removed promptly to avoid accumulation.
- ✓ Waste containers shall not be placed in hot places (in the sun). ✓ They shall be placed in closable containers that are easy to clean and disinfect.
- ✓ Containers shall be opened with a pedal (never by hand) and shall have a lid to prevent animals from entering the container.

8. PEST CONTROL

When we talk about food handling we call pests those animals that, in contact with food, cause its alteration or contamination, or that are simply annoying.

The most common pests in food handling premises are:

- ✓ Insects: such as flies, cockroaches, ants, weevils...
- ✓ Rodents: such as rats and mice.
- ✓ Birds: such as pigeons or sparrows.

8.1 Pest control measures

The most important methods of keeping facilities free of pests can be classified into passive pest control measures and active pest control measures.

Passive measures: these are used to fight and prevent their access to the site and to prevent them from obtaining food and shelter. The guidelines to be followed include, among others:

- ✓ Install wire mesh screens on windows and openings. These screens must be easily washable.
- ✓ Seal or cover all small holes where mice or rats can get into: water and gas pipes, ventilation ducts, electrical wiring, drains, etc.
- ✓ Drains will be watered and capped.
- ✓ Prevent access to food or drink: special attention should be paid to food storage (palletisation of goods, separation, rotation) and water tanks, which should have hermetically sealed lids.
- ✓ Prevent access to food debris and water: establish cleaning and disinfection programmes, place rubbish in tightly covered or sealed containers and dispose of it frequently. Keep the environment around containers clean and free of litter.
- ✓ To keep the industry facilities clean, without any food waste, without nearby sources of contamination from rubbish or stagnant water.
- ✓ Use ultrasonic repelling devices.
- ✓ Develop a regular inspection programme and promptly remedy any faults.

Active measures: these are procedures to eliminate or at least control these pests once they enter the establishment.

- ✓ **Physical measures:** electrocution devices, ultrasound, traps, these can be used freely, paying attention to their location, so that they are not a source of contamination for surrounding foodstuffs.
- ✓ **Chemical measures:** insecticides, rodenticides. Most of these are toxic to humans, so they should always be used by specialised and registered personnel. A detailed analysis of the pest must be carried out, to determine the most appropriate products, application methods, doses, etc. They should only be applied by authorised companies or personnel.

9. THE APPCC SELF-MONITORING SYSTEM AND REGULATIONS

HACCP (also called HACCP) is a system based on **Hazard Analysis and Critical Control Points** to identify, assess and control significant hazards and thus reduce the likelihood of food poisoning.

It is a compulsory document (according to European Regulation 852/2004) for food companies (industry, catering, warehousing, etc.), by means of HACCP companies control the risks of contamination in food.

Its application makes it possible to identify specific hazards and to develop appropriate control measures for
control them, thus ensuring food safety. Each HACCP system will be specific to each food business and must be able to accommodate changes such as replacement of equipment, technological evolution in the process, etc.

9.1. Pre-requisites as a pre-requisite for the implementation of a self-monitoring system

When implementing a HACCP system, it must be taken into account that support plans have to be defined beforehand, as they help to apply preventive measures for hazards that are more easily avoidable through the implementation of corrective hygiene measures. In this way there will be a better control of the general hazards.

It is imperative that these support plans are documented, properly archived and have records to show their implementation.

The structure of these plans will be common to all, and should answer the questions: "Who is responsible?", "What is to be done?", "How?", "When?" and "Where?".

The support plans to be defined to ensure good hygiene practices may include: ✓ Training of workers
- ✓ Conditions for products✓ Cleaning and disinfection
- ✓ Facilities maintenance✓ Pest control
- ✓ Water control
- ✓ Good manufacturing and handling practices✓ Identification and traceability control
- ✓ Waste control
- ✓ Control and monitoring of suppliers and distributors

It is important to clarify that there is no single or fixed list of these support plans. In other words, they are conditions that are susceptible to change depending on the needs of each company. In many cases, the prerequisites are defined by the companies themselves and may even vary during the implementation of any food safety model.

9.2. Principles of HACCP

Establishing, implementing and maintaining a HACCP plan requires seven distinct activities, referred to as the "seven principles":

1. Detect potential hazards: identify the hazards and assess the associated risks that accompany them at each stage of the product system. Describe possible control measures.

2. Identify critical control points (CCP): to apply a control that is essential to prevent or eliminate a food safety hazard or to reduce it to an acceptable level.

3. Establish the Critical Limit: critical limits that ensure control of the hazard must be established for each specified critical control point (CCP), and that these are defined as the criteria used to differentiate acceptable from unacceptable.

4. Apply surveillance procedures, including scheduled or planned tests and observations, by which the control of CCPs is ensured.

5. Establish corrective actions to be taken when monitoring at a CCP indicates or detects a deviation from an established critical limit.

6. Establish procedures for verification, including testing, random sampling, analysis and appropriate supplementary procedures, which confirm that the HACCP system is functioning correctly.

7. Develop appropriate **documents and records** to demonstrate the effectiveness of these principles and their application.

9.3. Guidelines for implementing HACCP

The elaboration of a HACCP plan requires following a number of tasks to ensure the correct application of the seven principles:

Establish a HACCP team: It is important that the HACCP team is composed of people from various disciplines related to food safety.

Describe the product: A full description of the product, including customer specifications, should be prepared using a form. The description should also include safety-relevant information on how the product should be packaged, stored and transported, as well as information on shelf-life and recommended storage temperatures.

Identify the intended use of the product: it is important to consider how the product is intended to be used. Information on whether the product will be consumed directly or whether it will be cooked, etc. must be identified for the intended end consumer.

Drawing up the product flow diagram (PFD): detailed sequence of the phases or stages of the process under study from the receipt of raw materials to the distribution and sale of a given food product.

Confirm the flow diagram on site: once the PFD has been completed, the HACCP team members should check the product system in order to compare the information in the PFD with the actual situation.

Complying with the 7 Basic Principles of HACCP

10. FOOD INFORMATION ACT (Allergens)

Most people can eat a wide variety of foods without problems. However, in a small percentage of the population, certain foods or food components can cause adverse reactions (food allergies and intolerances). People with severe allergies must be extremely careful about the foods they eat.

Differences between food allergy and food intolerance:

Allergy: occurs when the body comes into contact with an allergen, identifies it as a threat and, in order to defend itself against it, triggers an inflammatory process through the production of antibodies, causing everything from redness, rashes or watery eyes to oedema, swelling of the lips and mouth, respiratory problems or anaphylactic shock, a severe allergic reaction that can cause death.

Intolerance: occurs when the body is unable to process or digest a compound in food, which can cause digestive problems such as nausea, vomiting, abdominal swelling and pain, cramping and bouts of diarrhoea.

10.1. European Allergen Regulation

According to **the European Union Regulation 1169/2011,** known as the Food Information (Allergens) Act, it obliges all communities and establishments that sell or serve food (restaurants, bars, cafes, hotels, supermarkets, grocery shops, packaged or unpackaged), to **inform about food prepared with allergens**, so that any consumer knows what they can eat or what they cannot eat, without risk. In addition, the consumer will be informed if traces of these allergens could have leaked out during the handling process.

According to this regulation, all companies in the food sector must implement a series of measures to eliminate or minimise any food risk to the health of consumers. These measures are classified into 3 main areas:

- ✓ **Labelling.** The labelling of all packaged foods should be reviewed in order to bring them into line with the new regulations.
- ✓ **Allergen Management.** It will be necessary to establish work processes by which the presence of allergens in the production and processing of food products is recorded and controlled.
- ✓ **Consumer information.** All food businesses are obliged to provide information on the food sold or supplied by them, with particular reference to the 14 types of allergenic ingredients indicated in the standard and which may form part of their composition.

10.2. List of food allergens

Below is the list of the 14 allergens that must be compulsorily reported in any case that a food may contain them, according to EU Regulation 1169/2011.

- ✓ Cereals containing **gluten** (wheat, rye, barley, oats, etc.).
- ✓ **Eggs** and egg products.
- ✓ **Milk** and milk products.
- ✓ **Fish** and fish products.
- ✓ **Crustaceans** and crustacean products.

- ✓ **Molluscs** and mollusc products.
- ✓ **Nuts** (dried fruit) and nut products.
- ✓ **Sesame seeds** and sesame seed products.
- ✓ **Peanuts** and peanut products. ✓ **Lupins** and lupin products. ✓ **Soybeans** and soybean products.
- ✓ **Celery** and celery products.
- ✓ **Mustard** and mustard products.
- ✓ **Sulphur dioxide and sulphites** in concentrations above 10 mg/kg or 10 mg/litre in terms of total SO2.

11. LEGISLATION

The legislative measures to be taken are aimed at reducing, eliminating or avoiding health risks for citizens. They focus on the training of food handlers and the implementation of a HACCP system.

Its objective is the realisation of a single, transparent hygiene policy applicable to all food and all food operators. The most important are:

Royal Decree 2207/1995 of 28 December. Hygiene regulations for foodstuffs are established.

Royal Decree 202/2000 of 11 February. It establishes the rules to be followed by Food Handlers.

Royal Decree 3484/2000 of 29 December. It establishes the hygiene rules to be followed during the preparation, distribution and trade of ready meals.

Royal Decree 109/2010 of 5 February. RD 202/2000 is repealed and it is established that it is

The implementation of an appropriate control system in accordance with HACCP (Hazard Analysis and Critical Control Point Systems).

Regulation 852/2004 of 29 April 2004 on the hygiene of foodstuffs, which stresses the need for continuous training in food hygiene, within the quality system based on HACCP principles.

Regulation 853/2004 of 29 April 2004, laying down specific hygiene rules for food of animal origin.

Regulation (EU) 1169/2011 on the provision of food information to consumers.

12. COVID-19 AND FOOD SAFETY

12.1. Definition of Covid-19 coronavirus

COVID-19 is the disease caused by a new coronavirus called SARS-CoV-2 that can infect the upper and lower respiratory tract.

According to current scientific evidence, the COVID-19 virus is transmitted by close contact through droplets (or aerosols) expelled by infected persons when coughing or sneezing, or by contact with fomites.

The virus can pass from one person to another directly when droplets from an infected person's cough or sneeze come into contact with another person's nose, mouth or eyes. In addition, the viability of the virus for three hours in aerosols has recently been demonstrated.

Therefore, a person can become infected if, after touching a contaminated surface, object or the hand of an infected person, they put their hand to their mouth, nose or eyes. For example, this could happen by touching a doorknob or shaking hands with another person and then touching one's face.

According to available information, the virus can persist on inanimate surfaces such as metal, glass or plastic for up to 4 days. On other materials, such as copper or paper, it persists less, up to one day.

Symptoms

After an incubation period of 1-14 days, COVID-19 presents in most patients with **fever, cough and shortness of breath**. In some cases, **diarrhoea and fatigue** may also occur. In more severe cases, the infection can cause pneumonia, severe shortness of breath, kidney failure and even death. The most severe cases usually occur in older people or those with chronic illnesses, such as heart disease, respiratory disease, diabetes or people with low immune defences.

Food businesses are therefore **obliged to**: ✓ Intensify personal

hygiene measures.

- ✓ Specifically educate or train their workers to avoid or reduce the risk that they will contaminate the surface of food or packaging with the virus.
- ✓ Provide, where necessary, personal protective equipment, including masks and gloves, which can effectively reduce the spread of viruses and diseases in food businesses, if used correctly.
- ✓ Introduce distancing measures.
- ✓ Prevent infected or suspected infected food handlers from working.

12.2. Preventive measures

We, as food handlers, have an important role to play in preventing possible transmission of the disease. Knowing, applying and being strict with the recommended prevention measures is paramount in reducing the chances of transmission at work.

It could happen that the food handler is infected and without symptoms contaminating the food he/she is handling or the work surfaces through coughing or sneezing or by contact with contaminated hands. It is therefore important to follow some guidelines.

12.2.1. Preventive measures related to WORKERS' HEALTH

People with symptoms

Employees with respiratory symptoms or fever should stay home from work. Also if they have been in contact with a person infected with the coronavirus.

When a worker has signs of symptoms compatible with the disease:

- ✓ Immediately contact the company (by telephone or e-mail) so that you can be removed from your job as soon as possible.
- ✓ You will put on a mask and leave your workplace until the doctor assesses your condition and gives you instructions for recovery.
- ✓ Clean all surfaces with which the infected employee has been in contact, including all surfaces and objects visibly contaminated with body fluids or respiratory secretions and all surfaces that may be contaminated and frequently touched (e.g. toilets, lockers, doorknobs and telephones). Hydroalcoholic solutions or surface disinfectants should be used for cleaning.
- ✓ Ventilate the room where you have been working.
- ✓ Employees who have been in contact with a person with symptoms should wash their hands thoroughly with soap and water for 40-60 seconds.

Generic hygiene measures for workers

- ✓ Wash hands with soap and water on a regular basis and if possible, use hydroalcoholic gel for at least 20 seconds (especially after using the toilet).
- ✓ Cover your nose and mouth when coughing or sneezing.
- ✓ The use of face masks is compulsory when dealing directly with the public.
- ✓ Do not reuse tissues, kitchen towels or similar after use and wash your hands after throwing them in the waste bin.
- ✓ Regular cleaning of work surfaces, machinery and tools and common contact points (appliance doors, buttons, levers, door knobs, etc.) with disinfectants.
- ✓ Systematically put on personal protective equipment (PPE): masks, gloves, hair net, footwear, etc. After any non-food related activity, gloves should always be replaced and hands washed after picking up a box, opening or closing a door or window, answering a phone call, emptying a bin, etc.... Refrain from touching the mouth or eyes when wearing gloves.

- ✓ Always implement physical distancing measures: (minimum 1.5 metres between workers). If this proves difficult, employers must provide other equally effective measures to protect workers.
- ✓ When sneezing and coughing, cover your mouth and nose with your elbow or disposable handkerchief. ✓ Avoid touching your eyes, nose and mouth.
- ✓ Avoid physical contact when greeting. ✓ Avoid sharing personal objects (mobile phones).
- ✓ Avoid sharing items such as thermometers, TPV,... if so, disinfect them.
- ✓ Uniforms and working clothes, where appropriate, shall be washed and disinfected daily and shall be mechanically washed in washing cycles between 60 and 90 degrees Celsius.
- ✓ When transporting work clothes, it is recommended to carry them in a closed bag.

In order for the worker to be aware of and know the rules of food prevention, he/she will have to:

- Develop refresher courses on COVID-related food hygiene measures. 19 to avoid and reduce the risk of contaminating food or packaging during handling.

- Acquire information from official sources: governmental organisations and national or international authorities and high-impact scientific publications. Avoid especially journalistic sources with little rigour or with a tendency to create sensationalist content. Verify information with official and scientific sources to avoid jumping to conclusions and do not participate in the spread of hoaxes on the Internet and social networks.

12.2.2. Preventive measures related to FOOD

We must take extreme care with ourselves and our environment (pay special attention to unpackaged food and different catering services). It is therefore advisable:

- ✓ Regular and thorough cleaning of surfaces and utensils i n direct or indirect contact with food, as well as those used by customers.
- ✓ Discard gloves and change them before and after handling food.
- ✓ Wrap all bakery and confectionery products in plastic, paper or cellophane.
- ✓ Bulk products will always be displayed under plexiglass display cabinets, and clamps and bags will be provided for self-supply.
- ✓ Isolate newly received or purchased food that does not require refrigeration in a safe place for a few hours.
- ✓ Disinfect food packaging that cannot be disposed of before storage.
- ✓ Discard packaging such as cartons or yoghurts, placing the contents in previously disinfected safe containers.
- ✓ Distinguish and choose reliable and local food suppliers. The more the chain of intermediaries and transport operations between producer and consumer is reduced, the less risk of exposure to COVID-19.

12.3. Specific recommendations to minimise the risk of spread of Covid-19.

12.3.1. Hand washing

Thorough and frequent hand-washing is the most effective barrier to prevent Covi 19 infections, rather than the use of gloves. This can be done with conventional soap and warm tap water. It should be noted that hydroalcoholic gels should be used as a complementary measure, but never as a substitute for hand washing.

When is it necessary for food workers to wash their hands?

- ✓ Before starting work.
- ✓ Before handling cooked or ready-to-eat food. ✓ After handling or preparing raw food.
- ✓ After handling waste. ✓ After cleaning. ✓ Before and after using the toilet.
- ✓ After blowing your nose, sneezing or coughing. ✓ Before and after eating, drinking or smoking.
- ✓ After handling any items such as money, cards, mobile phones, etc.
- ✓ After handling utensils, tools or items such as scales, trolleys, boxes, crates, packaging, etc.

How should hands be washed?

12.3.2. Gloves

✓ For some tasks, disposable gloves may be used, always bearing in mind the following measures:
✓ Replace them often, especially after any activity not related to food handling (opening or closing a door, emptying a waste bin...).
✓ Wash hands before putting on a new pair. ✓ Avoid blowing gloves to put them on.
✓ Removing gloves is likely to contaminate your hands, so it is essential to wash them afterwards.
✓ Avoid touching mouth and eyes when wearing gloves.

12.3.3. Mask use

It should be noted that the use of a mask is effective if combined with frequent hand washing with soap and water or, if not, with a hydroalcoholic solution.

The use of a mask with or without a protective screen is compulsory when there are no barriers or a distance of more than 1.5 metres between workers or workers and customers. Customers shall keep the mask on until they are seated at the tables.

In any case, the use of face masks shall be compulsory for the staff of these establishments when serving the public.

How to use the mask correctly?

Steps for applying the mask:

1. Wash your hands with soap and water before applying the mask.

2. Make sure the mask is not damaged.

3. Make sure that the correct side of the mask faces outwards.

4. Place the mask on your face, locate the metal strip of the mask and place it over your nose.

5. Fasten the rubber bands of the mask around the ears or on the back of the head.

6. Completely cover your nose and mouth with the mask and make sure there are no gaps between your face and the mask.

7. Press the metal strip of the mask to fit your nose.

8. Replace the mask if it becomes wet and never reuse it.

9. Do not touch the mask while wearing it. If you do, wash your hands.

Steps to remove the mask:

10. Remove the mask from the back to the front, holding the rubber bands with clean hands.

11. Immediately discard the mask in a closed container. Do not touch the front of the mask at any time.

12. After removing the mask, wash your hands again with soap and water.

12.3.4. Physical distance (between workers and clients):

- ✓ An attempt shall be made to maintain a distance of 1.5 metres between customers, for which purpose the spaces such as the bar, the dining room tables and the terrace shall be organised to comply with this distance.
- ✓ Organise staff into work groups or teams to reduce interaction between them, ensuring that the same people work in each shift.

12.3.5. General cleaning and disinfection

- ✓ Prefer payment by card or other electronic means. The use of hand sanitising gel is recommended after contact with such media or money.
- ✓ Provide customers with a hydro-alcoholic hand hygiene solution in a visible and well-marked place at the entrance and exit of the establishment.
- ✓ It is advisable to reinforce cleaning tasks in all rooms, with special emphasis on surfaces, especially work surfaces where food is handled, those that are most frequently touched such as windows or doorknobs, and surfaces where different customers will eat.

- ✓ Work uniforms or similar, shall be bagged and sealed, and shall be taken to the point where they are usually washed, a full cycle wash at a temperature of between 60 and 90 degrees being recommended.
- ✓ Any personal hygiene material (masks, latex gloves, etc.) should be deposited in the residual fraction (grouping of household waste obtained after separate collections).

12.3.6. Utensils and equipment necessary for operation

The provision and use of specific equipment shall be necessary for the operation of the workstation, both for the protection and hygiene of personnel and for work elements and work areas.

Personal protection for workers: Masks, vinyl or nitrile gloves (the use of latex gloves is not recommended because of possible allergies to latex), hydroalcoholic disinfectant gel dispensers and exclusive work clothes, for establishments that provide them to their employees.

Food service: Paper tablecloths and napkins and single-use containers for oil, vinegar, salt, sugar, ketchup, mustard, butter...

Personal hygiene: Single-use soap and paper for hand washing, toilet paper and dispensers (to avoid unnecessary hand contact). The use of continuous-roller cloth towels is not recommended, as they become regular towels at the end of the roll and can be a source of pathogen transfer when drying hands.

Cleaning and disinfection of work areas and elements: Detergent, disinfectant for facilities, food-grade disinfectant for fruit and vegetables to be consumed raw and for surfaces that come into contact with food (such as worktops, display cabinets...).

Utensils and objects for cleaning and disinfecting the elements: cloths, clean mops, wastepaper baskets ....

12.4. Cleaning and disinfection plan to minimise the risk of Covid-19 infection.

Each premises will have to identify and locate the highest risk areas in order to intensify its cleaning and disinfection plan.

12.4.1. Items and surfaces to be cleaned and disinfected

- ✓ Food processing, handling and packaging areas and surfaces.
- ✓ Food storage chambers, refrigerators or coolers that are opened frequently.
- ✓ The cashier's area.
- ✓ The bar area (bar surface, handles for opening bottle racks, taps, etc.).
- ✓ Frequently touched surfaces (terrace and lounge tables and chairs, door knobs, light switches, data loggers, etc.).
- ✓ Storage area for kitchenware, crockery and cutlery.

✓ Public and staff services.
✓ Changing rooms/lockers or place where workers' clothes are laid out. ✓
Access to the establishment.
✓ Food transport material (isothermal boxes/bags).
✓ Reception area and, where appropriate, take-away food delivery area. ✓ Dispensing machines

12.4.2. Frequency of cleaning and disinfection

✓ The items and areas most at risk of infection and those with the highest use by clients and workers should be identified for more frequent cleaning and disinfection.
✓ Those elements on the terrace and in the dining room such as tables and chairs that are used by different clients shall be disinfected between one client and another.
✓ Cleaning and disinfection of toilets will be increased.
✓ The workstations and handling elements in them (counters and tables, lockers, partitions where applicable, keyboards, payment terminals, touch screens, etc.), especially those that have been used by more than one worker.
✓ The premises shall be cleaned and disinfected at least twice a day.
✓ Cleaning products shall be cleaned and disinfected after use so that they can be reused by another worker.

12.4.3. Method of cleaning and disinfection

Cleaning of food handling surfaces and utensils shall be done mechanically or manually depending on the item.

Mechanical way: crockery and utensils will be used in a dishwasher, dishwasher...

Manual: maintenance and storage of cleaning equipment, cleaning tools, etc. For the

cleaning and disinfection of surfaces, different guidelines shall be followed:

✓ Use of gloves for cleaning and disinfection
✓ Use of water and detergent, followed by disinfectant. The instructions on the label must be followed in each case.

NEVER MIX DETERGENT WITH DISINFECTANT !!!!

✓ After cleaning, wash hands or use water-alcohol gels.

12.5. General considerations.

The following hygiene and prevention measures must be carried out in the dining rooms and terraces of the establishment:

- ✓ Customers will wait with their masks on until they are escorted to their table by the staff.
- ✓ Hydro-alcoholic gels will be available at the entrance of the establishment for customers to use on entering and leaving the establishment.
- ✓ Bins (with pedal-operated lids) will be placed on the terrace and in the dining room for customers to deposit tissues and disposable material.
- ✓ Use single-use table linen as far as possible.
- ✓ The tablecloth, bread, cutlery, dressings should be placed just when the customer is seated at the table, not before.

- ✓ Eliminate self-service products for customers (napkins, chopsticks, oil cruets, etc.).
- ✓ Encourage payment by card or other means to avoid paying with cash.
- ✓ The menu will be kept untouched so that customers can download it via their mobile phone (QR, internet...).
- ✓ Study the circulation of both staff and customers so that they cross each other as little as possible, if necessary marking directions on the floor.

- ✓ Where there is no barrier between the personnel and the client, the mask must be worn with or without a protective screen.
- ✓ In establishments with self-service areas, direct handling of products by customers should be avoided and service should be provided by an establishment worker, except in the case of pre-packaged products. Tongs, ladles and other serving utensils should be changed frequently.

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