

Safe Food



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Why are we doing this course? (how to use this booklet)

- Because food related illnesses are on the rise
- Because we are facing new emerging threats that are changing the world
- Because all those involved in the food industry are personally responsible for the food they produce
- Because all those involved in the food industry, including food producers, those involved in cooking, packing, and transporting, have the **moral** and **legal** obligation to produce safe food.
- Because in Malta, all those involved in the food industry, must do a basic course in Food Safety. The food law states that this course must be delivered by tutors registered with the Health Department and all those doing the course have to be registered with the same department (LN178 of 2001) after passing the final exam.

- ❖ We emphasize that there are fines amounting to €12,500 and up to 5 years imprisonment for those causing harm through the food they produced.

- ❖ Some people think that the only harm that food can cause is FOOD POISONING.

- ❖ Food poisoning results in diarrhoea, high temperature, nausea, vomiting, stomach cramps, and muscle pain.

- ❖ Food can cause involuntary harm – this does not include obesity or diabetes.



❖ Hazards in food can be:

- **Physical** – as a result of sharp objects like fragments of glass, iron, toothpicks, small bones, nut shells, stones, nails, fishhooks, fish bones, shells of snails and seafood, and extremely hot food, etc.
- **Chemical** - toxins from petroleum, petrol, paints, antibiotics, pesticides, fumes, overused frying oil, contaminated fish and vegetables, chemicals produced by bacteria, dangerous metals like mercury and worst of all toxins produced by bacteria.
- **Biological** - Live organisms which can bring about infections like viruses, bacteria, moulds, algae, parasites such as tapeworm.

The above are dangerous for **EVERYONE**.

There are other dangers – like those suffering from allergies. Some people suffer from certain allergies. There are about 100 allergy causing foods – 14 of these are the cause of 90% of the total cases.



❖ Ingredients, which either have to be written in **bold** on the food packaging and labelling, or the consumers should be made aware of, are:

- **eggs**
- **milk and dairy products**
- **fish**
- **gluten (flour) and other cereals (spelt, couscous, barley, oats, rye)**
- **molluscs like mussels and clams**
- **crustaceans like crab, prawns, snails**
- **peanuts**
- **nuts (hazelnuts, nuts, brazil nuts, pistachios)**
- **sesame seeds**
- **mustard**
- **celery**
- **soya**
- **lupins**
- **sulphur dioxide**



❖ Therefore, whilst eating food which looks perfectly normal, the following can occur:-

- Food poisoning (high temperature, vomiting, diarrhoea)
- Allergy attacks (dizziness, shortness of breath, skin rash, swelling of the tongue and lips and possibly even death)
- Internal damage – burns or damage to the intestines.
- Infection after a long period of time like Mediterranean fever (deni rqiq)
- Cancer
- Accumulation of poisons in the blood like mercury
- Miscarriage
- Death
- Constant feeling of tiredness and weight loss without explanation
- Amnesia (memory loss) and paralysis

REMEMBER, FOOD THAT CAN CAUSE ALL THE ABOVE LOOKS ABSOLUTELY NORMAL.

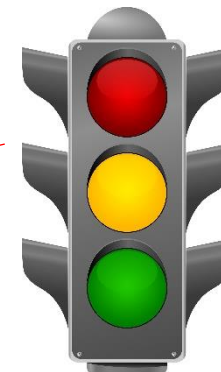
❖ Groups of people in a **higher** risk more than others:

- Elderly
- Sick people
- Pregnant women
- Infants under 2 years of age



However, EVERYONE is at risk.

❖ What do you have to keep in mind to produce safe food?



- ❖ To help you remember what you must keep in mind to produce safe food, you will see this brain sign, so you give it more importance.



- ❖ To make the process easier, we introduced the simple concept of the traffic lights.

- ❖ This is because in the Kitchen, or any food preparation areas, we must see things as either:

RED - DANGER

or

GREEN – SAFE & READY TO EAT





RED and GREEN

TOGETHER, THESE SHOULD NEVER BE SEEN

❖ Therefore, here are some examples of **RED** food which can be found in a kitchen or other food producing area. These are:

- Raw meat including poultry and game
- Unpasteurised milk
- Raw eggs
- Seafood caught from contaminated seas
- Agricultural products like vegetables, fruit, fresh herbs, spices, flour, uncooked rice, coming directly from the soil or field
- Fish



❖ Apart from the above, we can have other things in the kitchen which are **RED**, like:-

- **Hands that have touched red items**
- **Dustbins (especially if unlidded)**
- **Aprons that have touched red items**
- **Broken glass**
- **Water from an unlidded water roof tank**
- **Flies, mice, and cockroaches**
- **Pets like dogs and birds**
- **Iron fragments from machinery, nails, taps, staples and broken knives**

These cannot come into contact with ready-to-eat food, kitchen tools, green hands, aprons, food containers, etc. Because the **GREEN** food will become **RED**.



What items should be **GREEN** in the kitchen ?

- ✓ **Food which is RTE meaning Ready-to-Eat**
- ✓ **Items which come in contact with ready-to-eat food like:**
 - ❖ **Plates & glasses**
 - ❖ **Cutlery & tools**
 - ❖ **Dish cloths**
 - ❖ **Food grade detergent**
 - ❖ **Fridges, cupboards, drawers which hold R-T-E food**
 - ❖ **Tissue papers**
 - ❖ **Preparation areas for ready-to-eat food**
 - ❖ **Staff's hands and aprons MUST be free from any disease transmissible through food**



❖ This is a new perspective.

❖ Do not forget that there are 3 hazards, which are:

- 1. Physical
 - 2. Chemical
 - 3. Biological
- } These cannot be reversed once they are present in food
- 80°C → ●



Some facts on bacteria

Bacteria need 4 things to multiply and increase. These are:

1. High risk food
2. Water
3. Time – from 10 to 20 minutes
4. Heat (between **5°C and 63°C – also known as the danger zone**)



High risk food is that on which bacteria multiplies rapidly. These are:

- ✓ Meat and poultry
- ✓ Fish
- ✓ Sea food
- ✓ Milk & dairy products
- ✓ Eggs
- ✓ Cooked cereals and grains especially rice



All of these have to be kept outside the DANGER ZONE

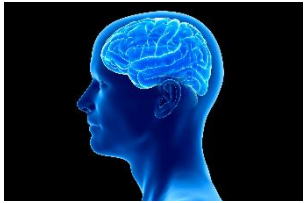
Which is between

5°C and 63°C

Fridge 1°C to 4°C

Hot cabinet 64°C and more

Unfortunately, some bacteria produce toxins and if the temperature exceeds 80°C they will die, however their toxins would have already been produced and these are not removed.

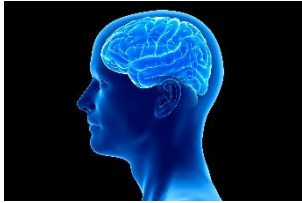


**It is not true that if you cook
above 80°C, all dangers are eliminated.**

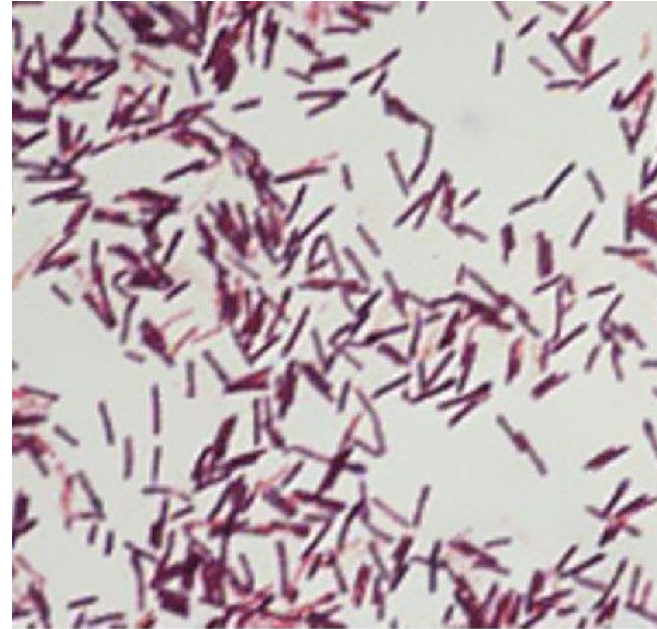
Heat above 80°C destroys worms, bacteria and fungi but not their toxins, the physical hazards, and spores (a rounded resistant form adopted by a bacterial cell).

Freezing at -22°C for 24 hours* is necessary to kill worms and parasites found in fish which are going to be used for eating raw as in sushi and carpaccio.

*Eu regulation 853 of 2004



❖ SPORES



There are bacteria which have a seed-like centre that can resist high temperatures up to 135°C (not oven but pressure cooker).



❖ Therefore, high-risk food like:

- Meat
- Boiled rice
- Sea food and others

Must be kept in the fridge (between 1°C and 4°C) once they cool down.

If this is not done, the spore will multiply and more bacteria are produced, many of which produce toxins which are not destroyed when cooked.

If food is to be placed in a hot display, these must be kept at >63°C. If this is needed to be kept at a lower temperature (i.e. within the danger zone), the duration of time must be validated by a competent Microbiologist.



SOME IMPORTANT BACTERIA

Salmonella – found in raw meats (especially birds), toilets and sewage

Campylobacter – found in raw meats and raw milk

Listeria monocytogenes – found in soft dairy products and dips – THE ONLY ORGANISM that can grow at -1°C!

Staphylococcus aureus – found on the skin, nose, armpits and groin

Clostridium perfringens – found in meat, soil and dust *

Bacillus cereus – found in cereals *

The last 3 form poisons which are **not** always destroyed by heat.

*spore formers



SOLUTIONS

- ❖ According to EU Regulation 852/2004, all those working in the food industry (including beverages and items in contact with food), must be trained on this process and participate in the HACCP(Hazard Analysis and Critical Control Points). If this is not done, they must work under supervision. This is a legal obligation.

- ❖ One must be proactive and think what could go wrong and lead to a food hazard.

The principles of safe food are based on the following criteria:-



IMPORTANT CRITERIA

1. Staff
2. Cleaning and hygiene
3. Temperature control
4. Maintenance and project design
5. Pest control
6. Ingredients, traceability, and process control
7. Ready-to-eat food, waste control & its byproducts, and food labelling.

These are the basis of HACCP.

STAFF

Staff must:

- ✓ Be familiar with this processes
- ✓ Be responsible and understand that it is his/her responsibility to produce safe food
- ✓ Be free from infectious diseases that can be spread onto the food which they are producing themselves like diarrhoea, infections, skin cuts, boils, whitlows, and hepatitis
- ✓ Fill in forms that they are asked to fill in and sign with responsibility
- ✓ Work in an orderly manner and keep their working area clean and ensure that whatever touches the GREEN food (RTE) is also GREEN
- ✓ Understands and obeys the work's regulations
- ✓ Make suggestions to make the system run better and smoother
- ✓ Keep their personal hygiene in the best possible hygienic state

HYGIENE

Hygiene is a state of cleanliness which needs continuous attention by keeping the place of work organised and clean.

CLEANING

Cleaning must be done following this 5-step method: -

1. Remove any large debris by dusting, sweeping or vacuuming the work area
2. Wash with food grade detergent and clean potable water
3. Rinse with clean potable water
4. Apply disinfectant
5. Rinse again with clean potable water

IMPORANT TO NOTE:

- ❖ Detergent is a cleaning liquid which is unperfumed and is food grade.
- ❖ Disinfectant kills bacteria.

Do not mix these two together. It is important that:

1. We use the recommended concentration with clean potable water
2. We use the recommended water temperature
3. We leave the detergent on for the recommended time (contact time)
4. We always use the same products which we know are effective by validation
5. Cleaning has to be carried out at the same time after the end of a process

THOSE IN CHARGE OF CLEANING HAVE TO KEEP AN OPEN EYE FOR ANY SHARP PIECES OR EDGES, FOR ANY MISSING MACHINERY PARTS WHICH COULD HAVE BECOME LOSE DURING PRODUCTION. IT IS IMPORTANT TO KEEP CLEAN AT ALL TIMES (CLEAN AS YOU GO).

When cleaning is done, one generally signs the “Cleaning Records”.

It is important to follow the Cleaning Schedule and sign the Cleaning Records.

PEST CONTROL

There are animals (pests) which can bring about illnesses. These should be kept out of the premises by:

- ✓ Not leaving excessive dirt/waste which can attract them
- ✓ Not leaving any gaps (underneath doors) or crevices from where they can come in
- ✓ Not leaving windows open and use wire netting so that flies and other insects cannot enter the premises
- ✓ Not leaving open drains as these could give room to mice and cockroaches

If we see any pest activity, we should advise our supervisor so that they can call the Pest Control Partners. A Pest Activity Sheet should be filled out on a weekly basis EVEN IF NO ACTIVITY IS NOTED (sing as na).

If anything could have become contaminated by pests, do not hesitate to throw away – these have become **RED**.

TEMPERATURES

- ❖ The correct fridge temperature is between 1°C and 4°C
- ❖ The correct freezer temperature is between -18°C and -22°C
- ❖ The correct temperature for a hot cabinet is above 63°C
- ❖ Killing of parasites and worms for 24 hours at -22°C

If a product's temperature has gone out of the above ranges, we have to advise the person in charge.

- ❖ Cooking temperature has to exceed the 80°C (temperature taken from the middle of the food)
- ❖ The temperature for **HIGH RISK** ingredients should never go above 6°C during food preparation especially meat, irkotta, eggs, milk and rice
- ❖ Thermometers (including those which are part of a fridge or freezer) have to be calibrated at least once a year

MAINTENANCE AND DESIGN

- ❖ Machinery and other cooking utensils have to be kept in a good working condition and in a clean state.
- ❖ We have to keep records of any maintenance carried out which is also backed up with a Maintenance Plan.
- ❖ It is important that a food factory/kitchen is designed in such a way that cleaning and hygiene are easy to maintain and keep **RED** and **GREEN** things as separate as possible.

RAW MATERIALS AND INGREDIENTS

- ❖ To produce safe food, you have to start with safe ingredients. These include:
 - food products
 - water
 - gas, charcoal and fuels
 - food grade detergents and disinfectants
 - food grade wrapping and containers which are compatible with the food they will be used with
 - food grade lubricants
 - food grade air when it forms part of the final product (like air introduced in ice-creams)
 - Paints and other material which come in contact with food and close walls
 - Containers especially those being used in the microwave
 - Gloves, disposable towels/paper, stretch and seal and foil (especially if wrapped around food for a long period) – MUST BE SUITABLE FOR THE PRODUCT THEY COME IN CONTACT WITH

It is important that food producers see that their suppliers have the necessary permits and are registered with the Health Department according to LN180 of 2001. They must ensure that all products bought are labelled in accordance to EU Reg 1169 of 2011 or are accompanied with a certificate bearing all the necessary information including allergens.

INSPECTION OF PRODUCTS UPON ARRIVAL AT THE FOOD FACTORY OR KITCHEN

- ❖ Upon receipt of food products at the factory/warehouse/kitchen, it is important that the responsible person checks that:
 - ✓ The temperature of the products is correct
 - ✓ The delivery van is clean and does not contain any other products which are not related to food
 - ✓ The packaging is clean from the outside too and there are no signs of pests or their secretions
 - ✓ The delivery person is clean and knows their work properly
 - ✓ The delivery note/invoice must include the batch number which should be the same as that printed on the box
 - ✓ The product is not beyond the Best Before Date or the Use by Date

It is important that this exercise is recorded.

In the case a delivery is not accepted, it is important to keep a note of the batch number so if this is delivered again, it is recognised. It is also important to inform the District Health Department, giving the reason why the products are not accepted, the quantity and the batch number.

FINISHED PRODUCTS

- ❖ Apart from finished products, one has to mention waste. If the latter is of animal origin e.g. meat, one has to keep a note of this and a certificate of where and how it was disposed of.
- ❖ Products have to be stored in a FIFO order (first in first out), meaning that the product received most recently is used after the product received earlier on.
- ❖ Stores have to be kept clean and pest free.
- ❖ Products of animal origin have to be discarded in accordance to EU Directive 1069/2009

TRACEABILITY

- ❖ Law 178/2002 (EU) stipulates that records of batch numbers, both for ingredients and packaging material, for all food products have to be kept.
- ❖ In the same manner, records of the batch numbers of the finished products have to be kept together with the name of each client it was distributed to.