

Shelf Life

What is a safe shelf life?



As a food producer you have a duty in law to provide safe food. Spoilage organisms cause food to deteriorate or rot and affect it's quality by causing mould, rancidity or staleness.

Unfortunately the pathogenic bacteria which cause food poisoning do not affect its appearance, taste or smell and can reach dangerous levels well before the food has started to visually deteriorate.

Determining the shelf life of food must be based on a sound understanding of the food as well as an understanding of the conditions required for bacterial growth.

Freshly prepared food

Food prepared in commercial kitchens does not normally contain chemical preservatives. Due to this the shelf life will depend on a combination of factors including:

- the type of food
- condition of the raw ingredients
- how the product has been cooked or processed
- cooling times
- type of packaging
- storage conditions.

Few foods are sterile and at each stage of food production more bacteria can be reintroduced into it. This can come from the lack of cleanliness in a premises; contact with equipment or surfaces; bacterial spores in the environment or via cross contamination from other foods or food handlers.

The general rule of thumb for the shelf life of most perishable, high risk food is the day of production plus two days. This is based on the assumption that food was prepared using fresh ingredients under hygienic conditions; was cooled quickly and transferred to a refrigerator where it was stored at 5°C or less.

For some foods this rule does not apply and it is essential that you fully understand the food you serve, the bacteria that can contaminate it and the impact this will have on its shelf life.

Below is a list of the most common foods that catch people out. These guidelines are for the maximum shelf-life, with the first day being the day of production.

Food type	Pathogen of most concern	Shelf life
Cooked rice	Bacillus cereus	2 days
Cooked pasta	Bacillus cereus	2 days
Coleslaw/Sliced meats	Listeria	2 days (FSA)
Meat based stews, casseroles	Clostridium Perfringens	3 days
Whole joints of meat	Clostridium Perfringens	5 days
Ready to eat product containing raw egg eg mousse	Salmonella	1 day (longer with pasteurised egg)
Pate	Listeria, campylobacter	2 days (FSA)
Hard boiled eggs	Salmonella	2 days
Hollandaise and Bernaise sauce containing raw egg	Salmonella (using raw egg)	2 hours (longer with pasteurised egg)

FSA = Food Standards Agency

This guidance is subject to change depending on food guidance and research.

For ready to eat mixed ingredients - such as sandwich fillings - you need to consider the shelf life of each ingredient and apply the lowest date. When selling products on to customers, such as open sliced ham, any consumer 'use by' labelling applied must fall within the original shelf life of the food.

Other ways to avoid waste

It is understandable that food business operators want the longest shelf life possible to help reduce wastage and ultimately costs. Shelf life cannot just be guessed at and must be based on sound knowledge which can be verified to be true. But there are other practical ways to avoid wastage:

■ **Freezing:** the shelf-life of cooked meat / fish dishes can be safely extended by freezing. Ideally it should be portioned; frozen on the day of preparation; labelled to enable stock rotation and used within 1 - 3 months. Extensive freezing can lead to a gradual loss of flavour and toughening of texture. At temperatures -10°C and warmer, spoilage organisms such as yeasts and moulds can grow along with reactions that cause spoilage problems including souring, putrefaction and rancidity. Once removed from the freezer the shelf life remaining would continue from

where it left off before freezing.

- **Find a different food manufacturer:** there are lots of different product ranges available that may offer a better shelf life to suit your needs.
- **Understand your customer base:** by recording customer sales for each menu item you can gauge the popularity of each dish, the volume of food needed for different products and how best to produce them. Producing smaller batches more often creates a fresher, better quality product which is lower in bacterial levels.
- **Revise your menu:** look to get crossover of product in your menus. For example a curry dish could also be used as a jacket potato filling as part of a snack board. Remove products which don't sell.
- **Promotion boards:** specials or promotional boards can help increase sales of foods which may be coming to the end of their shelf life.
- **Vacuum packing:** this can extend the shelf life of foods providing temperature control is maintained below 5°C and the seal remains intact. Different food safety rules apply for vacuum packing - please contact the council's environmental health department for further information.

Manufacturer's guidance

The majority of foods you use in your business will have manufacturer's guidance on the labelling providing shelf life information.

- **'Use-by'** dates are given to foods which, from the microbiological point of view, are highly perishable and as a consequence likely - after a short period - to constitute an immediate danger to human health. These foods must not be eaten after this date and it is illegal to sell or offer them for sale.
- **'Best-before'** dates are codes given to foods where a use-by-date is not applicable. Such products will have a longer shelf life and indicates when food is at its best quality.

Once the product packaging has been opened different rules of storage will apply and the labelling may say 'once opened use within 48 hours'. The lower of the two dates should be applied and it is recommended that the produce is re-labelled so that you and your staff are aware when it was opened. Different storage instructions may also be provided such as 'once opened keep refrigerated'.

If you have any concerns contact the manufacturer.

Food products and...

...Modified Atmosphere Packing

Food can be supplied in Modified Atmosphere Packing (MAP). This means that the gas environment within a food pack is different to that in the environment. This can involve removing the air - such as vacuum packing—or replacing it with an inert mixture of gases. Removing or changing the air from a product changes the micro-environment surrounding the food and can inhibit the growth of some spoilage organisms and pathogens.

Once the packaging seals are broken the food is exposed to normal air and bacteria will start to grow so reducing the shelf life. A good example of this is pre-packed raw meats which are packed in gases containing high oxygen levels to keep the meat looking pink.

...Preservatives

Supermarket pre-packed product such as ready meals can display shelf lives of ten days or longer. This is because the product contains chemical preservatives to extend its shelf life or is packaged using a modified atmosphere.

The product may also have a precisely monitored pH or water activity to control spoilage. There has been a lot of newspaper coverage about high salt or sugar levels in processed foods. Manufacturers use the chemical properties of salt and sugar to inhibit bacterial growth, but they remove the taste so the customer is unaware of the levels being consumed. Over the last couple of years customers have been shying away from preservatives in food. Some products which have historically been shelf stable now require refrigeration once opened and to be used within a defined period - such as tomato ketchup, mustard and pickled onions.

Shelf life testing

A food manufacturer, someone who commercially produces and packages food, has to demonstrate that the techniques used are adequate to keep the food safe until it is consumed. This is done by carrying out laboratory shelf life testing. Food can be tested each day of its shelf life until unsatisfactory bacterial levels are reached. If you are a small food manufacturer selling pre-packed products you may be asked to carry out this type of testing. Retests of food may be needed if the recipe changes.

The Law

If you wish to extend the shelf life of food to a period longer than recommended here or in other guidance. **YOU** as the food producer must demonstrate that the food is safe. This information needs to be based on sound scientific knowledge and a good understanding of the food and its associated hazards. It should be kept as part of your food safety management system so that it can be verified by the food safety officer. It will be examined should a complaint of food poisoning be received related to consumption of food from your business.

A business must be able to identify the hazards associated with their operation and the methods to control these hazards. Article 5 of Regulation (EC) No 853/2004 requires a permanent procedure based on HACCP principles. Use of the Food Better Business Pack will help you comply with HACCP principles.

If control measures being used have not been validated or are not accepted practice, then the authority can request evidence of the validation process, when it was undertaken, and who was involved (including their level of expertise).

Regulation (EC) 2073/2005 on microbiological criteria for foodstuffs lays out some safety and hygiene criteria that must be met for certain foods. These can apply at the point of production or throughout the shelf-life and if they are not met, the food business operator will not be able to place the food on the market or will need to remove it from the market.

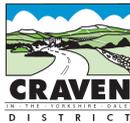
Food Sampling

Food safety officers will routinely sample food to determine its microbiological quality and this may include an assessment of shelf life. They will also look at the processes involved in preparing the food or take environmental samples of the food production area to assess hygiene standards. This may be in response to a complaint or part of a routine inspection program.

More information

- Professional cook books or technical cooking guides provide safe method instructions, guidance on the food safety risk within a food and what shelf life should be applied to the final product.
- To fully understand the bacterial hazards in food further information can be obtained through the intermediate food hygiene training course.
- Public Health England (www.phe.org.uk) co-ordinates national food sample testing. It produces articles and guidelines and carries out surveillance of new and emerging food poisoning bacteria in both the UK and Europe.
- The Food Standards Agency (www.food.gov.uk) provides information and guidance for caterers to help provide healthier and safer food for their customers. It includes advice on healthy catering, the 'Safer food,

better business' pack, guidance on food hygiene legislation and on food allergy and intolerance.



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