

Appendix 1

The use of time as a control for potentially hazardous food

A food business is required to maintain the temperature of potentially hazardous food either at or below 5°C or at or above 60°C during transport, storage and display unless the food business can demonstrate that maintaining food at another temperature for a specific length of time will not adversely affect the microbiological safety of the food.

Clause 25 of Standard 3.2.2 specifies ways in which a food business can demonstrate the safety of its alternative temperature system, see page 116. This appendix provides advice, based on documented sound scientific evidence, on the use of time to control the growth of food-borne pathogens in potentially hazardous food.

It is safe for potentially hazardous food to be between 5°C and 60°C for a limited time because food-borne pathogens need time to grow to unsafe levels.

The maximum time a potentially hazardous food can be safely at temperatures between 5°C and 60°C will depend on the temperature of the food. Food poisoning bacteria grow at the fastest rate at temperatures around 40°C. Hence if the food is at 40°C, the time that the food can be safely at this temperature is much less than if it is at 20°C. Advice is provided below on the maximum time that potentially hazardous food can be outside temperature control, based on a worst-case scenario.

As a general rule, the **total time** that a ready-to-eat potentially hazardous food can be at temperatures between 5°C and 60°C is 4 hours. This is the limit specified within the US Food Code and the UK Food Safety (Temperature Control) Regulations 1995. The 4-hour limit is based on a worst-case scenario. After this time the food must be discarded. The total time is the sum of the time the food is at temperatures between 5°C and 60°C after it has been cooked or otherwise processed to make it safe. For example, if raw meat is cooked, count the time the food is at temperatures between 5°C and 60°C after it is cooked. The cooked food may have been at temperatures between 5°C and 60°C when it was transported, prepared and served.

If the food is to be re-refrigerated, the total time a food can be at room temperature and then be safely put back in the refrigerator to use later is 2 hours. This 2-hour limit is based on advice provided in the UK's guidance notes on its Temperature Control Regulations. This advice states that 'in normal circumstances, a single limited period of up to 2 hours outside temperature control is unlikely to be questioned'.

The '4-hour/2-hour rule' is summarised below.

Any ready-to-eat potentially hazardous food, if it has been at temperatures between 5°C and 60°C:

- for a total of less than 2 hours, must be refrigerated or used immediately;
- for a total of longer than 2 hours but less than 4 hours, must be used immediately; or
- for a total of 4 hours or longer, must be thrown out.

If a food business wishes to maintain potentially hazardous food between the temperatures of 5°C and 60°C for time periods longer than the 2 hours and 4 hours specified above, it will need to be able to demonstrate that the extension in time will not compromise the safety of the food. For example, if a potentially hazardous food will be stored at a maximum temperature of 15°C, it will be able to be safely kept at this temperature for longer than 4 hours. However, food businesses will need to be able to justify this extension on the basis of sound scientific evidence, as the amount of time that is safe will vary depending on the type of food and the pathogens of concern.

Use of time as a control for potentially hazardous food that has been cooked and cooled

Food businesses may still utilise the '4-hour/2-hour rule' for potentially hazardous food that has been cooked and cooled, provided the business can demonstrate that the food was cooled in accordance with subclause 7(3) of Standard 3.2.2. If potentially hazardous food has not been cooled safely, it may not be safe for this food to be outside temperature control. If the food is cooled safely, pathogens that survive the cooking process will not be able to multiply during the cooling process and when this food is removed from refrigeration it will still take over 4 hours for the pathogens to multiply to dangerous levels.

Example

A food business cooks and cools chickens for use in sandwiches. It then displays these sandwiches at ambient temperature over the busy luncheon period. In order to demonstrate that this practice is safe, the business:

- establishes and documents a cooling process for the chickens that ensures the cooling temperatures and times specified in Standard 3.2.2 subclause 7(3) are complied with;
- records the time when the cooled chicken is removed from refrigeration; and
- records the time at which the chicken sandwiches must be discarded (this is 4 hours from the time the chickens are removed from refrigeration).

Food that has been cooked or otherwise processed for safety by another business

If a food business wishes to utilise the '4-hour/2-hour rule' for potentially hazardous food it has not itself cooked or otherwise processed to ensure its safety, the business will need to know the temperature history of the food. The business will need to know whether, following the cooking or other process step, the food has spent any time at a temperature between 5°C and 60°C. If any of the available time has been 'used up' before the business receives the food, this time must be counted. If the business does not know the temperature history of the food and is not able to obtain this information, it cannot make use of time to control the growth of food-borne pathogens and must keep the food at or below 5°C or at or above 60°C.

Example

A food business purchases precooked and chilled chicken. It uses this chicken in sandwiches that will be displayed at ambient temperature over the busy luncheon period. In order to demonstrate this practice is safe, the business receives, in writing, from the business that cooks and chills the chicken, advice that the purchased chicken is cooled in accordance with Standard 3.2.2 subclause 7(3), and spends less than 30 minutes between 5°C and 60°C from the time it is removed from refrigeration until the time it is delivered to the business. The business then demonstrates that this chicken spends less than 3½ hours outside temperature control before it is sold.