

### OS/07: Cooling of food

#### 1.0 Introduction

- 1.1 Dishes and products containing diced or minced meat, cooked rolled joints, rice and pasta may contain pathogenic spore-forming bacteria. Such bacteria have the capability to survive the initial cooking process, and if present within food that is exposed to a prolonged period of cooling, will grow and subsequently release a harmful toxin into the food. Prolonged cooling at ambient temperatures has been identified as a contributory factor in food poisoning.
- 1.2 As an integral part of the Hazard Analysis system the monitoring of the 'cooling' process should be recorded to ensure that safe food is produced. Monitoring will also highlight how long food takes to cool and remains within the danger-zone.
- 1.3 All food must be cooled to an acceptable temperature prior to being placed into chilled storage in order to maintain the internal temperature of the chilled appliance. Any upward deviation in the internal temperature of a chilled appliance may well compromise the safe storage of food.

#### 2.0 Cooling procedures

- 2.1 On completion of cooking one of many procedures may be adopted to accelerate the cooling process:
- liquid and semi-liquid foods should be decanted to a maximum depth of 2½inches/ 64mm;
  - cooked meat joints and poultry should be removed from the cooking vessel and placed into a clean container. Adequate space between joints should allow for effective airflow;
  - it shall be regarded as 'best practice' for joints of meat prior to being cooked being reduced in size e.g. 6lbs/2.7kilos;
  - the base of containers can be supported off the work surface in order to allow the passage of air beneath;
  - appropriate containers of hot food may be immersed in a sink of cold water and stirred on a regular basis;
  - cooling of food must take place in the coolest part of the kitchen, wherever possible must be covered and in an area where there is no raw meat, poultry, fish or vegetables;
  - the cooling of food must not take place adjacent to open doors or windows, as this may give rise to contamination from airborne bacteria, dust and/or insect pests; or
  - a blast-chiller may be used to accelerate the cooling process; however time and temperatures must be recorded on the appropriate control sheet. Refer to **TM/09: Blast chilling of food.**
- 2.2 Food items cooled at room temperature must be refrigerated within 90 minutes on completion of cooking and 'best-practice' would involve effective monitoring.

#### 3.0 Cooling of large joints and hams

- 3.1 Research undertaken into the safe cooling practices recommends that:  
Uncured meats e.g. roast; pork, beef, lamb etc.

## SECTION 2 - OPERATIONAL STANDARDS

Cooling times (hrs.)	Best practice	Maximum
- to 50°C	1-hour	2½-hours
- from 50°C to 12°C	6-hours	6-hours
- from 12°C to 5°C	1-hour	1½-hours
<b>Total time to 5°C</b>	<b>8-hours</b>	<b>10-hours</b>

### Cured meats e.g. hams

Cooling times (hrs.)	Best practice	Maximum
- to 50°C	1¼-hour	3¼-hours
- from 50°C to 12°C	7½-hours	7½-hours
- from 12°C to 5°C	1¼-hour	1¾-hours
<b>Total time to 5°C</b>	<b>10-hours</b>	<b>12½-hours</b>

- 3.2 The above information has been extracted from information published by the Campden and Chorleywood Food Research association and would refer to Review N°8 (Glaze J, Shaw R and Archer J (1998). "The Identification and Prevention of Hazards Associated with Slow Cooling of Hams and Other Large Cooked Meat and Meat Products" for more detailed information.
- 3.3 Cooling times and temperatures must be monitored and recorded on the appropriate control sheet.
- 4.0 Foods cooled prior to blast-chilling/freezing**
- 4.1 In any event the cooling down period must not exceed 30-minutes.
- 4.2 For the 30-minute cooling down period any of the afore-mentioned methods in the previous section may be used.
- 4.3 It would be regarded as 'best practice' for joints of meat to be reduced in size e.g. 6lbs/2.7kilos, thereby aiding cooling and subsequent rapid chilling/freezing. Refer to ***TM/09: Blast chilling of food.***

Version	Date of issue	Author	Endorsed by
V3	June 2019	Graham Day; Health & Safety Adviser	Graham Hakes; Senior Health & Safety Adviser