

Appendix 3

Cooling of meats after cooking — Report by Campden & Chorleywood Food Research Association

The Department of Health, London, funded the Campden & Chorleywood Food Research Association to identify safe rates of cooling for meat products, which because of their size and shape are inherently slow to cool. The findings of this work are reported in the document outlined below.

Gaze JE, Shaw R & Archer J, *Identification and Prevention of Hazards Associated with Slow Cooling of Hams and Other Large Cooked Meats and Meat Products*, Review no. 8, Project no. 16286, Campden & Chorleywood Food Research Association, 1998.

This document can be purchased from:

Campden & Chorleywood Food Research Association
Chipping Campden
Gloucestershire
GL55 6LD UK

Phone: +44 1386 842 000
Fax: +44 1386 842 100
Website: www.campden.co.uk

The document makes the following recommendations for cooling cured and uncured cooked meats.

Uncured products

For a typical uncured cooked meat product, made from good quality raw material under hygienic conditions and with sound process controls, the document recommends the limitations set out in the table below for cooling time from completion of the cooking process.

Temperatures	Good practice (time in hours to achieve temperature specified)	Maximum (time in hours to achieve temperature specified)
To 50°C	1	2.5
From 50°C to 12°C	6	6
From 12°C to 5°C	1	1.5
Total time to 5°C	8	10

Cured products

For products which are cured (defined as minimum 2.5% salt on water phase and 100 ppm nitrite in-going), the document recommends the limitations set out in the table below for cooling time from completion of the cooking process.

Temperatures	Good practice (time in hours to achieve temperature specified)	Maximum (time in hours to achieve temperature specified)
To 50°C	1.25	3.25
From 50°C to 12°C	7.5	7.5
From 12°C to 5°C	1.25	1.75
Total time to 5°C	10	12.5

Note that the document states that if the product may be expected to contain high levels of spores (for instance if significant levels of untreated herbs and spices are distributed throughout the product), the above cooling times may not be safe and advice should be sought.