
Critical Limit Guidance: Processing Pre-cooked Cured Meats Intended for Re-cooking by Consumers

Some processors receive or produce refrigerated fully cooked cured meat products, then subdivide and repackage the product into single portions for refrigerated or frozen distribution. During portioning and packaging, the product is not re-heated and, because the consumer is directed to fully cook the product, it is assigned to the HACCP plan category of “heat treated but not fully cooked, not shelf-stable”.

In a HACCP plan for this category, a Critical Control Point is usually the step at which the product is warmest. In 2004, we conducted a study to support the designation of simple Critical Limits that could be used at the CCP for cured meats in this HACCP plan category. The Critical Limits were intended to prevent growth of *Salmonella* spp. and *E. coli* O157:H7 on cured meats during processing and re-packaging.

Single-portion cured pork chops, turkey slices, and ham slices, intended for re-cooking by the consumer, were inoculated with *Salmonella* spp. and *E. coli* O157:H7, refrigerated 24 h at 41°F (5°C), and then exposed to either 50°F (10°C) for 2, 4, or 6 h, or room temperature (70°F / 21°C) for 1, 3, or 5 h. The greatest increase in pathogen numbers during the short-term exposure of pork chops to 50 – or 70°F (10 or 21°C) was 0.5 log CFU/piece with a statistically significant increase ($P < 0.05$) only observed after 5 h at 70°F (21°C) for *Salmonella* spp. (0.3 log CFU/piece increase). On ham and turkey slices, there was a 0.3 – 0.4 log CFU/piece increase in pathogen numbers when the products were first removed from refrigeration, which was probably attributable to recovery of injured cells. However, there was no significant increase in pathogen numbers thereafter, indicating that neither species was growing.

The results of this study support the following Critical Limits:

1. Product should not be between 41° and 50°F (5 and 10 °C) for more than 6 hours, or
2. Product should not be held between 41° and 70°F (5°C and 21°C) for more than 5 hours.

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The University of Wisconsin-Madison Center for Meat Process Validation provides science-based HACCP support to small meat processors in meeting state and federal mandates for safe food processing and handling.

