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## **Critical Limit Summary: Controlling *Listeria monocytogenes* on Head Cheese**

**Background:** Formulation of head cheese involves addition of large amounts of vinegar to pieces of meat. The finished product typically has a pH below 4.6 and, in some cases, the pH may be less than the 4.4 level which is cited as the minimum pH for growth of *Listeria monocytogenes*. If the pH of head cheese is low enough so that *L. monocytogenes* did not increase in numbers by more than 1 log during normal shelf-life, then the vinegar used in formulation of the head cheese could be considered an effective antimicrobial agent and allow a processor to operate under Alternative 2 of the USDA interim final rule addressing the control *Listeria monocytogenes* on RTE meat and poultry products.

**Research Study:** Slices of head cheese from three different lots (pH values were 4.4, 4.2, and 4.4) were inoculated with 5 strains of *Listeria monocytogenes*, vacuum-packaged, and then stored at 41°F. After 8 and 31 days of storage, numbers of surviving *L. monocytogenes* cells were determined.

**Research Results:** *Listeria monocytogenes* rapidly died off on the surface of the head cheese. Population decreases after days averaged 2.5 – 2.8 logs, depending on the method used to count surviving cells. By 31 days, no surviving cells were detected. Processors can clearly make head cheese under Alternative 2 of the USDA *Listeria monocytogenes* regulations, provided that the product pH is 4.4 or less.

### **Validated Critical Limit:**

- Head cheese pH of 4.4 or less

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