APPLICATION OF HACCP PRINCIPLES FOR THE MEAT INDUSTRY

GUIDANCE SHEET NO: 11

SPECIFYING THE CONTROL MEASURES PRINCIPLE 1.3

PRINCIPLE 1.3 CONTROL MEASURES

Control measures are actions and/or activities that are taken to prevent, eliminate or reduce the occurrence of a hazard that you have identified. The picture above shows a production line for grilled chicken pieces. Raw chicken meat is likely to be contaminated with *Campylobacter sp* and *Salmonella sp* which are both foodborne pathogenic microorganisms. In this example the control measure is to thoroughly cook the chicken meat using a temperature and time combination that will guarantee the destruction of all pathogenic microorganisms present in the meat (meat must achieve a core temperature of 72°C for a minimum of 2 minutes).

The control measure must not be confused with the act of monitoring of control. In the grilled chicken example, the continuous cooker will be fitted with devices to monitor the cooking temperature and residence time for meat passing through the cooker. The measuring devices monitor the process but are not control measures. The control measures are achieved by varying the power supplied to the heating elements and the speed control on the conveyor belt motor.

HOW ARE FOOD SAFETY HAZARDS CONTROLLED?

Only significant hazards (those above your predetermined significance score trigger point) will be carried forward to this stage. For each significant hazard record what actions and/or activities are to be taken to prevent, eliminate or reduce the hazard to an acceptable level.

You should remember that:

- More than one control measure may be necessary to effectively manage a specific hazard. For example, use of a metal detection system, maintenance of the detection system, and training on using it might all be needed to avoid the hazard of metal pieces in food.

- One control measure may manage more than one hazard. For instance, oil temperature and fry time can be an effective control for reducing both numbers of *Salmonella sp* and *Campylobacter sp* in fried food.

- Control measures are not always carried out at the same Process Step where the hazard arises. For example, a hazard at Process Step 1 may be 'presence of metal in raw material from supplier'; this may have several controls including the use of only pre-approved suppliers, or supply to an agreed specification. These controls will appear at Process Step 1, however a control measure at Process Step 15 'effective working metal detector and rejection system' is also a control for this hazard.

RECORDING HAZARDS AND CONTROL MEASURES IN YOUR HACCP PLAN

When the hazards and suitable control measures have been identified you should prepare a table to record details of hazards, control measures and monitoring actions for each process step. An example is given in table 1 below. The sample table only contains a few rows of hazards and control measures, the table in your HACCP plan is likely to contain more combinations of hazards and control measures.

Table 1. Summary of hazards, control measures and monitoring actions for a fried chicken process.

Step Number	Process Step Description	Hazard and Possible Cause	Control Measure	Monitoring
10	Deep frying	Survival of bacteria due to undercooking: low oil temperature or short exposure time	Stated oil temperature and frying time	Checks on the continual measurement of oil temperature to be taken on the first product at the start of the shift, every 30 minutes thereafter and on the last product of the shift. Timer with alarm to be activated as each batch is placed in the fryer
15	Metal detection	Introduction of metal from broken machinery used in other process steps	Effective working metal detector and rejection system	Metal detector checks taken at the start of a run, end of a run and every 20 minutes. The checks are carried out using 1.5mm Ferrous, 2.0mm Non-Ferrous and 3.0mm Stainless Steel, all are to be detected and rejected by the metal detector
15	Metal detection	Introduction of metal from broken machinery used in other process steps	Prerequisite (GHP) requirement of Planned preventative maintenance	Routine maintenance will be carried out as outlined in the Planned preventative maintenance procedure PPM-MD01
15	Metal detection	Introduction of metal from broken machinery used in other process steps	Prerequisite (GHP) requirement of Training	All staff in must be trained in operation and checking of the metal detector