

Plant Construction and Product Flow

A well designed plant will include such features as: adequate space for equipment and storage of materials; separation of operations that might allow for cross-contamination; adequate lighting; ventilation and protection against pests. In addition to a well constructed plant, the food product flow, from the start of processing to when final shipment occurs, is one of the key safety components of most food operations. The following information is presented to highlight the main considerations when reviewing product flow in your plant.

Cross-Contamination

The prevention of cross-contamination is critical in food plants and involves arrangements of rooms, equipment and even personnel. To avoid cross-contamination, it is therefore essential that raw material is received, handled and stored separate from foods already processed or even partially processed. From here the sequence of processing operations should be as direct as possible. A "straight line" process flow is regarded as the most effective from a food safety viewpoint.

Clean or Finished Product Areas

A physical segregation (ie. walls or approved barriers) between "clean" and "unclean" areas is often required. Unclean areas are those where raw materials are handled. Often a cleaning operation or a heat treatment (ie cooking of shrimp) is marking the point where the process flows from an unclean to a clean area. Thus any subsequent contamination of the product would carry over to the final product, ie there is no additional processing step that will reduce or destroy the contamination.

The separation between the clean and unclean areas must be complete. Ideally there should be no human traffic

between these areas, and equipment and utensils used in the unclean areas must not be used in the clean area. This means that there should also be separate washing facilities for equipment and personnel in these areas. For easy identification, personnel should wear different coloured protective clothing and use colour coded utensils for each operation.

Interruptions and Dead Ends

Equally important in "lay out and design" of processing facilities is to ensure that there are no interruptions and no "dead ends" in the product flow. These are areas where raw or semi processed material can accumulate and remain for a long time at ambient temperature. Time/temperature conditions for product during processing are extremely important critical control points (CCPs) in the prevention of bacterial growth. If any delays in product flow are necessary, the products should be kept chilled.

In summary, the plant layout and practices should ensure that:

- all production should proceed with no criss-crossing, back tracking or interruptions;
- ingredients should move from "unclean" to "clean" areas as they become incorporated into food products;
- ventilated air and drainage should flow from "clean" to "unclean" areas;
- discarded outer packing material should not make contact with unwrapped ingredients or finished products; and
- there is sufficient space for plant operations including storage, maintenance and staff breaks, of materials and personnel.

*For further information
please contact your Fish
Safety Officer (604.707.2458)
or your local Health Authority*

