Physical Hazards

(1) Examples

Physical hazards include a variety of materials referred to as extraneous materials or foreign particles or objects. A physical hazard can be defined as any physical material not normally found in a food that can cause illness or injury to a person consuming the product.

Physical hazards in finished products can arise from several sources, such as contaminated raw materials, poorly designed or maintained facilities and equipment, faulty procedures during processing, and improper employee training or practices.

The types of physical hazards that can be found in NRTE/RTE products include metal fragments (from nails, screws, needles, seals, knives, equipment parts, shroud pins, wire, jewelry, buckshot, etc.); glass shards (from broken jars, bottles, light bulbs, thermometers, windows, eye glasses, etc.); wood pieces or chips (from broken pallets, handles, boards, etc.); stones (from driveways, etc.); plastic pieces (from packaging material, food/candy wrappers, gloves, etc.); bone fragments (from the cut-up and fabrication of carcasses), and other foreign materials (pens, trash, etc.). In some cases, physical hazards enter the plant with the live animal (e.g., buckshot). But in many cases, these physical hazards are introduced to NRTE/RTE product as a result of events that occur during the production process (e.g., metal from a blade or wood chips from a broken pallet). The size, shape, and consistency of the foreign object should be considered in determining whether it is or is not a hazard.

(2) Public health concerns

Typical public health concerns associated with physical hazards in NRTE/RTE product include broken teeth and damage, such as tears, to the mouth, esophagus, stomach, and intestines. These physical hazards may obstruct air passages or intestines. In some cases, death may result due to suffocation or infections (intestinal blockages). Small children are particularly susceptible to problems brought on by physical hazards since their body structures are smaller, and the physical objects may have a greater effect. RTE products pose the greatest risk when physical hazards are embedded in them, because the consumer has a lower likelihood of identifying and removing the hazard prior to consumption if they do not further handle (e.g., mix) the product.

(3) Control methods

Methods that establishments use to control physical hazards include visual observation of product as it is unboxed or mixed, sanitation procedures, SOPs for product handling, GMPs to ensure proper maintenance and inspections of

facilities and equipment, and foreign materials detection equipment (inline magnets, screens, traps, filters, etc.) used during the production process. Establishments may implement controls to prevent physical objects from entering the plant in incoming product by instituting specifications for incoming material and requiring suppliers' letters of guaranty.

Note: Biological, chemical, and physical food safety hazards although discussed separately, can share properties that span more than one hazard classification.