iMIS Food - Physical Hazards Table

Component	Food Product	Origin	Characteristics	Severity	Control	Prevention
Glass	Glass fragments pose a risk in any food product, but contamination is more frequent in those packaged in glass or derived from agricultural sources. Their presence can cause injuries and lead to strong consumer aversion, impacting brand reputation.	Introduced with raw materials (agricultural and horticultural products). Introduced during the process (packaging materials, mercury-containing thermometers).	Glass particles are often strong and sharp.	Medium to high. Largely depends largely on their size and shape. Small, blunt fragments generally pose a low risk, while larger or sharp shards can cause serious injuries such as lacerations or internal bleeding. The presence of glass, regardless of size, is unacceptable to consumers and can severely damage brand reputation.	Visual inspection of glass-based packaging materials and sanitation with water or air pressure system. Lastly, search for the presence of glass particles with X-ray equipment.	Keep glass out of production areas.
Metal	Metal particles can contaminate any food product during processing or packaging. The severity of risk depends on the size and shape of the particle, with larger pieces posing a greater threat of injury. Consumer perception of metal contamination is highly negative.	Materials (fishing hook, syringe, metal wires), staff (staples, equipment, jewelry), process (screws, nuts , sieves).	Metal particles are often big and stiff. In most occasions, components break apart from the equipment or are present in the form of metal wires.	Medium, on expectional occasions, high. While small particles (under 6mm) are typically harmless to adults, they can pose a risk to infants, children, and individuals with psychiatric or psychogeriatric conditions. Severe injuries are most often associated with larger metal pieces exceeding 12.5mm.	Metal sieves in the process and metal detection at the end of the process.	Periodic preventive maintenance of machinery and equipment but, of course, also personal hygiene .
Wood	While wood fragments can potentially contaminate any food product, they are most commonly found in those derived from plant sources. Ingestion of wood can cause discomfort, texture issues, and in some cases, choking.	Materials (Crates, pallets etc.), staff (wooden equipment, brooms etc.).	Wood particles usually are not firm but create splinters in almost all cases.	Low. Most cases of wood consumption are without injuries.	Preventive measurements can only control the presence of wood.	Do not use wood in production areas and minimize the usage of wooden crates and pallets as much as possible.
Plastic	Plastic contamination can occur in any food product, often originating from packaging materials or processing equipment. Consumer perception of plastic in food is extremely negative.	Process (crates, packaging material , garbage bags, equipment with handles etc.), staff (fake nails, biro).	Plastic particles might be stiff and sharp (splinters of crates) or flexible (plastic bags, packaging materials).	Medium to high. While particles smaller than 4mm typically pose no threat to adults, they can be hazardous to infants, children, and individuals with psychiatric or psychogeriatric conditions, potentially causing choking or other complications. Flexible plastic, though less likely to cause direct injury, can also present a choking hazard for these vulnerable groups.	Locate detection equipment for plastics at the end of the process.	Visual control of equipment, crates and packaging material but also personal hygiene.
Stones	Stones or stone fragments in food pose a hazard due to their potential to cause injury and their capacity to induce microbial contamination. Furthermore, their presence triggers consumer aversion and disgust, rendering the product unacceptable.	Primarily introduced with raw materials, particularly agricultural and horticultural products.	Stones and stone fragments are typically hard, rigid, and can have sharp edges.	Moderate to high. Larger stones pose a risk of injury, while even small fragments can cause discomfort and damage teeth. Consumer perception is highly negative.	Sorting, sieving, and visual inspection during processing, potentially aided by optical sorting technologies.	Careful sourcing of raw materials, effective pre-harvesting practices to minimize stone presence in crops.
Familiar-product-particles	Natural components like fruit pips, nut shells, and bones, while inherently present in certain foods, can pose risks such as dental damage or choking. However, consumer awareness regarding these naturally occurring elements generally leads to cautious consumption, resulting in a relatively low frequency of related injuries.	Inherent to the food product itself (e.g., fruit pips, nut shells, bones).	Naturally occurring, vary in size and hardness depending on the specific food.	Generally low. Consumer awareness of these components typically leads to cautious consumption.	While inherent, some control can be achieved through processing methods (e.g., pitting machines for fruit).	Clear labeling and consumer education regarding the presence of these natural components.
Pests	Pests, such as insects and rodents, contaminate food with their bodies and by-products, posing health risks like diseases and allergic reactions. Their presence is not only physically harmful, potentially causing injuries or choking, but also triggers disgust and undermines consumer trust due to the perceived lack of hygiene.	External contamination from the environment, often during storage or processing.	Variable depending on the type of pest (insects, rodents, etc.). Can introduce foreign bodies, allergens, and pathogens.	High. Pests pose significant health risks and trigger strong consumer aversion.	Rigorous pest control measures throughout the supply chain, including facility sanitation, traps, and barriers.	Maintaining hygienic conditions in processing and storage areas, proper waste management, and employee training on pest awareness.