

# Physical Hazards

Hazards by  
QAssurance

# Physical hazards

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# *Introduction*

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Physical contamination of food goods occurs when a product is contaminated with particles such as glass, hair, dirt, flaking paint, injection needles (meat), insects, and so on. Building materials, poor staff hygiene, and poorly maintained buildings and equipment are the most common sources of physical pollutants. Foreign bodies are all materials that do not naturally belong in food. These foreign bodies in food can not only cause annoyance or aversion to consumers, but sometimes harm people and can even pose a health hazard.

# Glass

Parameter	Characteristics
Food products	All food products have the possibility to become contaminated with glass particles. Agriculture, horticulture and food products packaged in glass have a higher frequency of glass contamination.
Origin	Introduced with raw material (agriculture). Introduced during packaging processes (packaging materials, thermometers)
characteristics	Glass particles are often firm and sharp.
Severity	Average to high. particles glass smaller than 2 mm do not form any health problems since they have the characteristics of sand. particles glass between 2mm and 2 cm do create injuries. In general, is the risk of consuming particles bigger than 2 cm small because they are easily detected by the consumer before consumption. On the other side does this of course not count for people with a visual handicap or psychiatric and psychogeriatric patients.
Hazard control	Visual inspection of glass-based packaging materials, sanitation with water or air pressure system. Lastly search for the presence of glass particles with X-ray equipment.
Prevention	Analyse packaged product with x-ray on the presence of glass particles.
Symptoms	The most injuries are on the mouth and gums. On some occasions are the stomach and intestines perforated with the possibility of a secondary infection. Dental damage is unlikely.

# Metals

Parameter	Characteristics
Food products	Contamination with metal particles can occur in all type of food products.
Origin	Materials (fishing hook, syringe, metal wires), staff (staples, equipment, jewelry), process (screws, nuts, sieves).
Characteristics	Metal particles are often big and stiff. On most occasions do components break apart from the equipment or is it there a presence of metal wires.
Severity	Medium, in exceptional occasions high. Particle's metal smaller than 6 mm don not form any health dangers. This doesn't count for infants, children, psychiatric and psychogeriatric patients. On most occasions are injuries caused by metal particles bigger than 12,5 mm
Hazard control	Metal sieves in the process and metal detection at the end of the process.
Prevention	Periodic preventive maintenance of machinery and equipment but of course also personal hygiene.
Symptoms	Most of the injuries are on the teeth and sometimes on the dental area itself due to the sharp particles. (Metal wire as example). Secondary infection as consequence of metal consumption is unlikely.

# Wood

Parameter	Characteristics
Food products	Contamination with wooden particles can occur in all type of food products.
Origin	Materials (Crates, pallets etc.), staff (wooden equipment, brooms etc.).
Characteristics	Wood particles are normally not firm but create splinters in almost all cases.
Severity	Low. Most cases of wood consumption are without injuries.
Hazard control	The presence of wood can only be controlled with preventive measurements.
Prevention	Don't use wood in production areas and minimize the usage of wooden crates and pallets as much as possible.
Symptoms	There are almost no known cases where injuries are caused by wood. One exceptional example is when a consumer damaged his intestine as consequence of a 6 cm toothpick.

# Plastic

Parameter	Characteristics
Food products	Contamination with plastic particles can occur in all type of food products.
Origin	Process (Crates, packaging material, garbage bags, equipment with handle etc.), staff (fake nails, biro).
Characteristics	Plastic particles might be stiff and sharp (splinters of crates) or flexible (plastic bags, packaging materials).
Severity	Medium to high. Particles smaller than 4 mm do not form normally any danger. This actually does not count for the infants, children, psychiatric and psychogeriatric patients. In general, does flexible plastic not form injuries but might cause suffocation at the above-mentioned groups.
Hazard control	Locate detection equipment for plastics at the end of the process.
Prevention	Visual inspection of equipment, crates and packaging material but also personal hygiene.
Symptoms	Injuries are mainly caused as consequence of stiff plastic particles. Gum damage is the most common injury.

# Stones

Parameter	Characteristics
Food product	Stones from agriculture, horticulture could lead to the forming of teeth damage.
Origin	Process (Crates, packaging material, garbage bags, equipment with handle etc.), staff (fake nails, biro).
Characteristics	Stones can be found in all shapes and sized, with rounded or sharp edges.
Severity	Medium to high. Particles smaller than 4 mm do not form normally any danger. This actually does not count for the infants, children, psychiatric and psychogeriatric patients. In general, does flexible plastic not form injuries but might cause suffocation at the above-mentioned groups.
Prevention	Visual inspection, the use of sieves to prevent larger stones entering the production process.
Symptoms	There may be minor damage to teeth or skin/tissues.

# *Pests*

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Pests or parts of pests could cause damage thanks to firm and sharp characteristics of these particles. Sharp parts of pests can be dangerous, when consumed, for example broken bones, nails, bird beaks. Next to that, pests could enhance the potential of microbial contamination or zoonotic diseases.

*More information about pest will be available in the “Pests by QAssurance” PowerPoint.*

# Hazards by QAssurance

