Metal detection in production lines
Requirements, technology and application recommendations

- Requirements for prevention and detection, legal background
- Overview of preventative actions
- Introduction of metal detection technology
- Validation and verification of detection systems
- Processes for separation of contaminants and monitoring of metal detection systems
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1. An introduction to metal detection

Preventative measures and foreign body management have become increasingly important in the food industry. One reason for this is the changing requirements of food standards. Another reason is increased public sensitivity to contaminated and defective products. In the media age product recalls can mean much more than economic losses, and in the worst case scenario may damage the image of the company as a whole.

But what exactly are foreign bodies?
In food production they are usually solid (physical) objects which do not belong in the product. Food contaminated with foreign bodies often represents a health risk for the consumer.

Possible injuries include injuries to the mouth, pharynx, oesophagus and the gastro-intestinal tract. These injuries may be caused by metal shavings, stones, fragments of glass, pieces of plastic or similar objects. Foreign bodies also include insects, chewing gum or hair.

It is true that these are not automatically a health risk for the consumer, but according to the common Food Hygiene Regulations, these foreign bodies are classified as a „negative influence in the form of nauseating damage“, which may possibly result in a recall or withdrawal of the product.

Foreign bodies can get into a product in various ways. For example, ingredients can cause a physical contamination of the products within the production and/or packaging process, for example due to metal shavings or screws. Or this may even happen during harvesting (e.g. metal, stones).

With the aim of minimising the risk to the consumer, in Europe companies in the food industry are obliged to implement a permanent procedure based on the HACCP principles. Article 5 of Regulation (EC) No 852 / 2004 of the European Parliament and of the Council on the Hygiene of Foodstuffs governs the hazard analysis and determination of the critical control points (CCPs) of the process steps.

These guidelines refer to the statutory European requirements as an important criterion in metal detection. These notes provide background information. Please observe the specific legislation and customer requirements of your country.
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