



Food Manufacture

Foreign Body Detection

Lesson 3

Understanding the importance of foreign body detection and identifying the different ways to detect them in a food product is explained within this course.





Metal detectors can be used to detect metallic contaminants and preventing the contaminated product from reaching the retailer.





X-ray equipment can be used to detect bone, glass, stones and dense plastics within food as well as having the ability to detect metal contaminants within a foil/metal tray.





Metal detecting equipment should be used on the finished product as near to the end of the production process as possible to provide protection from foreign bodies.





Metal detectors are the best equipment to use but there are some exceptions where use of alternative equipment is needed e.g. x-ray, fine sieves or filtration of products



Metal detectors or x-ray equipment should have one of three systems.

1. Automatic rejection device for continuous in-line systems.
Contaminated product is diverted to a secure unit.
2. Belt stop system with an alarm. This is common for large packs of product.
3. In-line detectors which show the location of the contaminant so segregation of the product can occur.



**If metal packaging
is used an
alternative method
to metal detection
can be used such as
x-ray detectors,
magnets or product
inspection prior to
packing**



There are 4 points which a metal detection or x-ray equipment documented procedure should state

1. Who is responsible for testing the equipment
2. Operating effectiveness and sensitivity of the equipment for all products
3. Methods and frequency of checking the detector
4. Recording of the results of any checks



**The frequency
of testing
should be
based on the
quantity and
type of product.**





The frequency of testing should also consider the following:

- Start up and finish of shifts
- Changeover of products
- Machine settings change due to downtime
- Customer requirements
- Regular checks throughout the production process





A metal detection procedure must include 5 key points



Key Point 1

Use of test pieces which have a sphere of metal of a known diameter on them



Key Point 2

Tests carried out separately on ferrous metal, stainless steel and non-ferrous metal



Key Point 3

A test to verify
the detection
and rejection
mechanism is
working



Key Point 4

Test of the metal detector by passing packs in the same order and speed as normal production



Key Point 5

Checks of
failsafe systems
fitted to the
detection and
rejection system



Revision Activity 3

What alternative equipment can be used instead of a metal detector when checking products in foil trays?