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Avoid foreign bodies in products

Recalls due to foreign bodies are getting more frequent. Last year, there were two recalls due to foreign bodies in the Swiss meat industry. Preventive measures are the most effective in avoiding foreign bodies in products, and awareness of the employees is important. Depending on the situation, detectors are a must.

According to the Federal Food Safety and Veterinary Office BLV website, the
Swiss meat industry experienced two recalls because of foreign bodies last year: On February 2, 2018, a turkey 'Fondue Chinoise' was recalled because of transparent foreign bodies of plastic film. And on June 5, 2018, meat snacks "minipic" were recalled because of blue, hard plastic pieces.

What are foreign objects anyway? These are all ingredients that are considered not belonging to the product by the consumer. This means: glass, metal, plastic, stones, biological foreign bodies such as wood, insects, hair, but also components derived from the product such as bone fragments, burnt parts, unwanted crystals of salt or sugar.

Foreign bodies are often a health hazard: sharp and sharp-edged foreign bodies can cause severe injuries to the mouth, oesophagus and gastrointestinal tract. Unexpected larger foreign bodies are a choking hazard, especially for children under the age of 3 and older people. If you think of hair and insects, foreign bodies are also unappetizing.
Foreign objects in products can be avoided mainly by preventive measures.

To avoid foreign bodies, one has to understand how they get into the product.
There are four ways:
• through packaging and raw materials
• through production machinery and equipment
• through the environment
• by employees

Avoid entry through packaging and raw materials
Packaging material should be stored in such a way that the material is not contaminated. When using containers, it is good practice to tilt them before filling or blow them out with air.
Powdered raw materials can be sieved before use. Raw materials in pieces
such as herbs or mushrooms are visually inspected before use.

Avoid entry through equipment
Wherever metal-to-metal contact could occur (blender, cutter, augers, etc.), a functional check should be made prior to use and checked after use to determine if a friction has occurred. Be aware of any noise during operation and respond immediately if signs of scrubbing appear. Seals and plastic parts are checked regularly, defective and fragile plastic and rubber parts replaced immediately. Knives should be checked in the morning and evening for breakages.

Avoid entry through the environment
Glass is not allowed in the production plant. If glass containers are used as packaging, special precautions must be taken (avoidance of glass breakage, specific precautionary measures in case of glass breakage). For open glass lamps a splinter protection is to be installed. Windows in the

immediate vicinity of open products are to be masked with foils or they have splinter-proof glass. Flies and other insects are kept away with fine nets and fought against. UV insect traps are preferably equipped with adhesive foils instead of high voltage, otherwise they distribute insect parts or dead insects in an uncontrolled manner in the environment. Windows are to be kept closed consistently. Doors should be opened only if needed. Cleaning materials (brushes, cloths, etc.) must be checked and replaced regularly. Use cleaning utensils with eye-catching colours, so that any residues in the product are clearly visible.

Avoid entry by employee

Employees should dress in such a way that they do not become a source of foreign bodies. Hairnets are to be pulled over the ears. Watches and jewellery must be stored in the changing room.
Repair work in the production rooms must not be carried out during operating times. When treating materials (drilling, sawing, grinding) carried out in the production room, the removed material must be taken up with a vacuum cleaner. Contractors must be instructed accordingly. It is important to raise awareness of foreign bodies in the food production among employees. Foreign bodies could be the topic at the annual hygiene training. As an exercise you can look at the four ways of foreign body entry in your own company.

Detectors

It is more difficult to separate out foreign bodies with detectors. However, metal and X-ray detectors have proven to be useful when properly installed and maintained.

Metal detectors are especially recommended in companies with a lot of machine interactions where metal in the form of screws or splinters could get into the product. They work according to the principle of induction: metals disturb a built-up magnetic field. The more magnetic
the metal, the better the metal detector works. So normal iron can be detected up to 1 mm, chrome steel only up to 2 mm. The matrix of food (frozen, salt content) can however disturb the detection.

In X-ray detectors, the food is irradiated with very weak X-rays and a detector on the other side of the food captures the rays. A foreign object would disturb the rays and can therefore be detected. X-ray detectors are useful where foreign bodies have a significantly different density than the food. Especially for bone splinters in large slaughterhouses, X-ray detectors have proven their worth. For very large differences in density, it is also possible to detect foreign bodies in the millimetre range.

Detectors can spot foreign bodies in unpackaged or packaged products. The
packaging can however also disturb the detection. Products in metal cans and tin foils are unsuitable for metal detectors.
Before a detector is purchased, a test should be performed on the selected device.

Any product with foreign bodies is a product with a defect. If a batch is contaminated with foreign bodies, appropriate measures must be taken to ensure that the affected batch does not go on sale. Should batches containing foreign bodies, that pose a health risk, nevertheless go on sale, the manufacturer is obliged to recall these products. Additional costs could occur if consumers have been injured.
Only those who take the danger of foreign bodies seriously can avoid call-backs as mentioned at the beginning.

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