

Keeping tabs on the latest food fads and the challenges they present

In its 2019 Global Food and Drink Trends report, analysts Mintel predicted that modern takes on sustainability, health and wellness, and convenience will reshape the food industry. This article looks at the food safety challenges these new food fads pose and how the latest inspection technology can maintain product integrity.

by Phil Brown,
Managing Director,
Fortress Technology Europe.
www.fortresstechnology.com

The food industry is evolving at a rapid rate. Whether it is plant-based cuisine, protein-rich snacks or convenience with class, today's food manufacturers are having to work harder than ever to please discerning consumers. Yet whatever the latest trend, the primary aim for producers must always be food safety.

Metal detectors and inspection systems are critical to the food production process. As tastes change, technology must keep pace with evolving food trends to ensure safety standards are not compromised.

'Speed scratch' subscriptions

The days of low quality, frozen, bland TV dinners are – thankfully – behind us. Today's consumers are looking for high quality meals that will fit into their fast-paced lifestyles, without having to compromise on health or flavour.

As a result, convenience foods, specifically meal kits are anticipated to continue growing in popularity throughout 2020 and beyond.

Britain's home cooks are largely set in their ways but are increasingly looking for meal inspiration, reports Mintel. Additionally, as many as 42% of British consumers are interested in a personalised diet.

Subscription recipe boxes, also known as 'speed-scratch' or meal kits, was worth an estimated £129.2 million in the UK in 2017, with 6.5% of the UK population signing up to a subscription service.

These convenience offerings deliver all the ingredient components required to make a



Around 6.5% of the UK population have signed up to a meal/drink kit subscription service.

fresh, tasty and nutritious meal at home, without the hassle of weighing, measuring or shopping for each item individually.

In order to accurately inspect meal kits and ensure they are free from contamination, producers need to ensure their metal detection solution is sophisticated enough to cope with not only different kinds of foodstuffs simultaneously, but also different types of packaging.

Each type of food – protein, salad, vegetable, carbohydrate, etc – has different conductive properties and therefore behaves differently in a metal detector. For example, some proteins are easier to inspect cooked than raw; and salad and vegetables will be easier to inspect than protein. The same principle applies to packaging; metallised foil is more problematic than plastic, for example. And if each item is individually wrapped before being placed into the final box, then the overall packaging will be thicker and sensitivity might be affected.

Fortunately, there are detectors available that can cope with such challenges. A metal detector that can run multiple frequencies simultaneously, such as the Fortress Interceptor, is ideal for these kind of elevated convenience products, as it can accurately inspect a variety of conductivities at the same time.

Moreover, this kind of detector is an intelligent inspection solution; it will quickly 'learn' to recognise the different phases of a complex product and be able to accurately

inspect it for signs of contamination, ensuring the final product reaches the consumer exactly as the producer intended.

Evergreen consumption

Sustainability has been climbing up the consumer agenda for a number of years, and is set to really take off, moving towards a 360-degree approach spanning the entire product lifecycle. With plastic pollution hitting the headlines, there is now a drive towards sustainable packaging alternatives in the food industry.

Bioplastics made from materials such as cellulose pose no problem to metal detectors, as they look and behave just like regular plastic.

However, food producers need to be aware of the issues they could encounter with recycled cardboard. Cardboard is shredded during the recycling process, exposing the metallised film, which is usually aluminium based. Additionally, in our experience staples can also be a high source of contamination. These metals will therefore trigger an alert on an inspection system.

While it is possible to calibrate or reduce the sensitivity on the detector to bypass the alert caused by metallised film, this will also decrease sensitivity on the product.

No producer wants to risk metal contamination. In order to ensure a safe product yet avoid false readings interrupting the production process, we advise customers to only purchase recycled cardboard from a supplier that has a metal detection system on site; thereby ensuring their packaging is free from metal contamination before it enters their factory.

Protein power

Rather than relying on supplements, consumers are moving towards fortified foods that contain elevated levels of supplements such as Omega-3, calcium or iron, or that are rich in turmeric, ginger or garlic; ingredients renowned for their anti-ageing and wellness properties.

Also in the shopping baskets of those seeking a healthier lifestyle are products

Continued on page 22

Continued from page 21

packed with protein. But with the move towards a more plant-based diet showing no sign of decreasing, this does not necessarily mean meat.

According to Mordor Intelligence, Europe's protein bar market is expected to grow by 7.4% between 2018-2023. The market is characterised by a high level of product innovation. However, low-profile foods such as snack bars can cause problems for inspection machines.

Just like confectionery bars or cookies, the ingredients used to make protein bars are dropped into a drum before being pressed

The European protein bar market is expected to grow by 7.4% between 2018 and 2023.



into the required shape. If a contaminant such as a piece of metal falls into the drum rollers, it will get flattened and crushed, running the risk of it being incorporated into the final product.

As these ultra-thin contaminants can be especially difficult to detect, Fortress has developed the Interceptor DF. Using a simultaneous multi-frequency operation, it is the world's first metal detector to use multiple field direction and greatly improves detection of ultra-thin contaminants, making it ideal for use in low-profile applications.

A bright future

As food trends evolve, inspection machine manufacturers such as Fortress will continue to work closely with food producers to develop solutions that ensure they can keep pace with current trends while maintaining product safety.

The use of mason jars has exploded in recent years. Because the underside of the lid is aluminium, these applications would previously have been inspected by x-ray. However, by working with customers and inspecting the product before it is sealed, or switching to a plastic cap, Fortress has been able to ensure the integrity of the contents.

Metallised film has also proved challenging. Bread and biscuit companies



Metallised film and staples in recycled cardboard could trigger a metal detector alert.

often use it to preserve their products and increase its aesthetic appeal, but its metal content causes a signal on the detector.

Fortunately, the Interceptor model can phase this out while increasing sensitivity, thanks to its simultaneous multi-frequency properties.

In fact, today's flexible metal detectors are capable of overcoming almost any challenge. Fortress is confident that whatever food trend is on the horizon, they will be able to develop a solution with the client to successfully inspect it. ■