

On the Path to Quality

THE CHOICE OF THE IDEAL PRODUCT INSPECTION PROGRAM CAN BE OVERWHELMING AS IT DEPENDS ON A NUMBER OF FACTORS, FROM PRODUCT CHARACTERISTICS TO REGULATIONS AND STANDARDS. THE FIVE TIPS OF THE METTLER TOLEDO COMPANY CAN SHED SOME LIGHT ON THIS IMPORTANT DECISION TO ENSURE QUALITY PRODUCTS, PRODUCTIVITY AND COMPLIANCE



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+ The need to equip bakery processing lines with top-quality product inspection equipment is more pressing than ever before. Tightened regulatory standards and heightened consumer awareness require that bakery manufacturers take all measures necessary to protect both customers and their brand reputation.

In 2010 the UK Food Standards Agency (FSA) reported 116 incidents of physical contamination, with 66 % concerning 'extrinsic material not related to the food itself'. Thirteen product recall notices were issued. Interestingly, in 2009 the number of incidents was 56, less than half the 2010 figure. More recently, in early 2011, Flowers Foods, a bakery company, had to recall its bread and muffins as they contained small pieces of metal. These figures and the example above are the type of issues that provoke concern amongst bakery manufacturers. There are inevitable and serious consequences in the event of a product recall – the financial cost of sanctions, fines and damaged machines is often high, and can have immediate and long-term implications for company share prices. Food safety scares can dent consumer confidence to such an extent that affected brands may find it very difficult to recover. In order to keep the brand protected, certain steps must be taken. Below is a five-point checklist of the route to the highest-quality product inspection.

1) Understand the regulations

The first step in satisfying food regulations and standards is to acquire a full understanding of what they entail, and which particular ones apply to an organisation. It's important to select equipment and suppliers that can ensure compliance and have knowledge of global quality standards, regional differences and industry variations.

Checkweighers, metal-detectors, x-ray equipment and vision inspection systems must satisfy legislation implemented by

state regulators – bodies such as the Chinese State Food and Drug Administration, Germany's Federal Ministry of Food, Agriculture and Consumer Protection, or non-federal US state regulators – in their ability to guarantee process and product security. In many cases, it is also important to choose technology and equipment that adheres to the demands of the industry, such as standards encompassed by the Global Food Safety Initiative (GFSI), which includes British Retail Consortium (BRC), International Food Standard (IFS) and FSSC 22000 schemes.

The requirements heaped upon manufacturers do not end with food safety legislation, global certification schemes and process-specific standards. For example, checkweighers play a pivotal role in meeting trading standards such as Weights and Measures, and innovative, centralised product inspection device management helps to placate retailers who have their own individual sets of standards, such as Tesco, Marks and Spencer and Walmart – especially in terms of due diligence.

2) Know your product

Armed with an awareness of relevant regulations and standards, manufacturers must turn their focus to the nature of their product. What is the product density and thickness? How is it packaged? Is the product individually wrapped or in bulk loose flow? Different combinations can affect the optimum inspection solution. For complete safety, it is important to understand at what point, or points, in the production process a bakery product needs to be inspected and what contaminants entrepreneurs are looking for at each point.

Product or pack orientation has a similar bearing on the type of inspection needed, as well as positioning on the belt – for example, doughnuts may be randomly positioned on a conveyor belt in the production process. In this instance, x-ray technology is first able to locate a recognizable product, and

then run an inspection routine. Market-leading product inspection solutions can be tailored to accurately inspect any product format, of any density, in any packaging.

Part of knowing your product is understanding the factors that could limit inspection sensitivity. This draws upon knowledge of product technology, potential contaminants and environmental factors. For instance, a bakery product packed in an environment with limited space may require a metal detector with a sensitive detection coil, plus the ability to be positioned in close proximity to metal structures and other equipment without interference and impaired performance. Features such as Mettler-Toledo Safeline's Zero Metal Free Zone (ZMFZ) take this a step further, using its patented Internal Cancellation Field (ICF) technology to eliminate interference from nearby metal structures, even when fitted into tight spaces.

3) Increase risk awareness

Good manufacturing practices, such as those outlined in a Hazard Analysis and Critical Control Points (HACCP) program, should be in place no matter where or what your company is manufacturing. A comprehensive manufacturer audit, which in the case of HACCP requires the following of seven key principles, involves the systematic identification of manufacturing risks, and the incorporation of means to mitigate the risk when identified or the implementation of corrective actions to manage them. The seven key principles apply across the board, whether you produce fresh or frozen baking products. HACCP analysis enables manufacturers to get a grasp on which contaminants are most likely to affect their product, be it metals, glass, bone or plastics, in addition to all product integrity risks on your line. These integrity risks, which require accurate product inspection to control, may include the risk of missing product, broken product, damaged packaging or inconsistent fill levels. Once the initial risk assessment is complete, bakery manufacturers are in a position to better understand which technologies are ideal for their particular risk control requirements.

4) Optimise productivity

Whilst a product inspection system will at a minimum ensure quality and safety, additional features can be selected to facilitate increased productivity and minimise downtime. These twin goals can be attained by choosing efficient, easy-to-use and flexible equipment, specific to your requirements. 'Condition Monitoring' features in metal detectors are a proven method of improving line efficiency. By identifying potentially adverse trends early on and, crucially, providing advance warning to machine minders or maintenance operatives, these systems help to avert detection system failures and improve overall Original Equipment Effectiveness (OEE). In market-leading inspection solutions, intuitive touch screens provide an easy and efficient system through which to control line parameters, speed up the set-up process and provide further productivity boosts.

Easy integration with other surrounding pieces of equipment is also important for inspection machines – this allows

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The XC CC CombiChecker is a checkweighing and metal detection combination system for manufacturers to speed throughput and reduce footprint on the production line

installation time to be kept to a minimum which in-turn increases Up-Time. Similarly, system options exist to provide flexibility for the inspection of multiple different products at a single machine setting (through the use of 'change-free' technology). Technologies can also be combined in a single unit, for example, metal detector and checkweigher combinations or x-ray and checkweigher combinations.

Integrated data monitoring software programs, such as Mettler Toledo's centralised product management platform ProdX, enable real-time monitoring of multiple locations and greatly enhance OEE. Simple-to-understand online visualisation of the complete production line, and at-a-glance status of device health and effectiveness, ensures that interventions are planned rather than reactive.

Inspection systems that can keep up with the speed of the line are key to efficiency. Choose technologies that can accurately and reliably inspect products without slowing down throughput.

5) Rely on the experts

The purchase of product inspection equipment best suited to your line needs can appear, on first sight, a daunting task. Plus, with food safety regulations changing continually, there is an added pressure on manufacturers to stay up-to-date with the latest developments, and bring in the latest technologies to meet the new required standards.

In order to eliminate confusion, and select the most appropriate product inspection equipment, bakery manufacturers need a partner they can rely on. They should be able to call on an equipment provider with the worldwide expertise necessary to give close consultation on optimum systems, corrective actions, and the ability to provide the best product inspection equipment available to carry them out.

One-stop-shops and bespoke solutions are ideal for manufacturers with varying production demands, allowing for the best combination of metal detection, x-ray, checkweighers or vision inspection systems, whilst also offering the ability to easily ramp up or down as production demands change. +++