

International Food Hygiene

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Improving the global safety and quality of food and drink

AUTOMATION

Process control in the food and drink sector

VALIDATION

Method comparison study of food/environment samples

ALLERGENS

Safeguarding consumers and businesses with better testing

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foodforthought

The owner of a takeaway restaurant in the UK has recently been charged with manslaughter having sold a meal to somebody who then died from a severe reaction to their existing peanut allergy.

This case begs some interesting questions.

Firstly, it would appear that other issues were involved with this takeaway business and the death was the proverbial 'last straw' for the authorities.

If this is the case, how should these other, earlier issues be viewed?

Secondly, it is understood that the victim lived alone. If that is the case, how much did this contribute to the outcome in that there was nobody on hand to help.

Thirdly, if we accept the second point, how much did the victim contribute to his own death by choosing to live alone knowing that he was at risk?

All this may appear to be a bit philosophical, but it does highlight the fact that 'out of little acorns mighty oaks do grow'!

Or, to put it another way, it is amazing how relatively minor

breaches in food safety can cascade into manslaughter charges!

Having said this, there are lessons to be learnt from this sad saga.

Most importantly, do not let complacency rule the day – if you have issues with the authorities, nip them in the bud, do not let them roll on and on.

In the future, would it be better if food safety authorities adopted the approach of 'being cruel to be kind' and had the philosophy of 'one strike and you are out'?

Alternatively, should they bend over backwards to help and give the food producer numerous chances to sort his business out?

However, this last option could so easily end up with a situation similar to that of the takeaway owner that we highlighted at the outset.

You must have some sympathy for enforcement officers because they can so easily be caught up in a situation of 'you are damned if you do, and you are damned if you don't'.

Would it be helpful if guidelines on when to prosecute are made public so that everyone knows the score? ■

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Confidence in cleanliness!
(Photo courtesy of R-Biopharm Rhône)

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worldfocus

An executive summary of key international issues

Botulism

One product recall too many?

In the UK some batches of smoked halibut, smoked trout and smoked salmon have been recalled from the market by the processor/supplier due to the possible risk of botulism food poisoning. This follows Food Standards Agency concerns about some aspects of the procedures that were being used to control *Clostridium botulinum*, which can produce toxins. However, no trace of this toxin had been found! Surely, this is an over reaction, bearing in mind that virtually no botulism has been seen in the UK for years. Would it not have been better to just quickly correct the perceived procedural shortfalls, especially since they had probably been there for months or years and not resulted in botulism?

Listeria

Is the USA on the verge of listeria hysteria?

Over the first two weeks of May there have been almost 20 product recalls in the USA for possible listeria contamination even though there have been no cases of illness. Several recalls were linked to products containing vegetables from the same producer. Recalls include frozen vegetable/chicken fried rice products, frozen yellow cut corn, meat and poultry products containing green beans, organic frozen mixed vegetables, vegetable items, meat tamale products, chicken entrees and pot products. We assume many of these are based on listeria isolations in the processing facilities. With no cases of illness is this another instance of over reaction? No doubt, time will tell.

Salmonella

Has nobody learnt from the British study?

Some years ago a British study showed an increase from 4/11 to 10/11 farms testing positive for salmonella when testing was increased x10. That is, the more you test the more you find! Is this part of a bigger picture? Can it apply to testing for any zoonotic foodborne pathogen in the food chain? The USA is now subjecting food processors to more stringent monitoring. For food poisoning to occur the causal agent has to contaminate product at a rate equivalent to at least one infectious dose of foodborne pathogen per portion of food product. Our testing is quite capable of detecting at levels well below these. How strongly does detection of listeria by an environmental swab correlate to an infectious dose of listeria in a product?

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Automation of process control in the food and beverage sector

While most food and beverage businesses have adopted process automation in one format or another, the technology has evolved considerably over the past few years, leading to improvements in design, efficiency and reliability.

One of the major drivers for businesses to increase levels of automation is legislation, but the need to compete in the market place and reduce production costs has also played a significant part.

by Bürkert Fluid Control Systems,
Bürkert Werke GmbH und Co.,
Ingelfingen, Germany.
burkert.com

Within the food and beverage industry, the key to finding the best automation solution is a thorough analysis of each individual part of the plant or installation. By carrying out an in-depth analysis of the application, it can be determined if

a centralised control system using non-intelligent nodes, will deliver the required performance, or if the sheer size of the system means that the control has to be decentralised – using a fieldbus system working with field controls, intelligent valves and actuators.

Pneumatically actuated process and control valves play a key role in manufacturing. They are the core element for controlling fluid movement within practically every production plant. However, the economic and hygienic aspects of these process fittings in a centrally controlled automation process are not without their difficulties. The best solution for large and complex plants is usually not a single, one dimensional automation concept covering the entire production process. In fact, each different part and section of the process, down to machine level, has its specific requirements.

Consequently, an intelligent combination of different automation



concepts will provide the best results.

In order to achieve this goal, Bürkert is deploying three equally important automation approaches in parallel: fully centralised, fully decentralised and local distributed intelligence working under some level of automation supervisory control.

Reasons for improvements

● Legislation

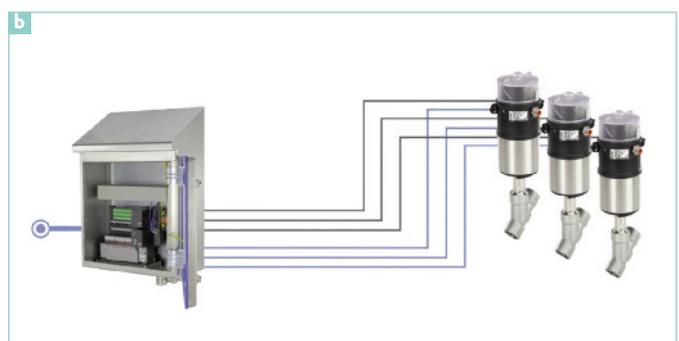
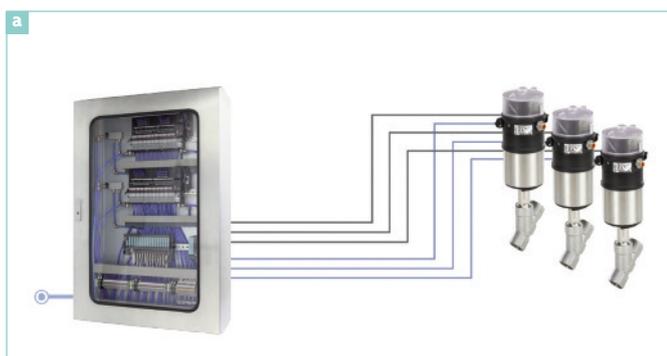
In the food and beverage industry stringent standards with regards to cleanliness and product quality are put in place.

These standards are intended to protect the consumer and they are
Continued on page 8

Fig. 1a. Traditional, fully centralised control can have its benefits; in smaller, less complex applications, where most components are in close proximity to each other, then installing airlines and wiring for individual valves direct to a cabinet for air supply and I/O makes sense.

Fig. 1b. A good intermediate measure for larger systems is to connect a group of valves and other feedback devices to a local control cabinet. Cabinets can then be networked using a fieldbus solution. This reduces the distance air lines and control wires have to travel. A Bürkert valve manifold interface can aid installation speed and economy in this situation.

Fig. 1c. Fully decentralised control is only possible using intelligent valve controllers that can communicate using fieldbus protocols such as ASi. This arrangement reduces wiring and allows common air supplies to be provided locally rather than individual lines from control cabinets.



Continued from page 7
 enforced rigorously in most countries by specification and regulation. In order to comply with many of the statutory regulations, there will be a requirement to provide process data and analysis as evidence of compliance.

In addition to statutory requirements, there are also guidelines on process validation which require a basic level of data capture, which can be achieved even with older legacy equipment.

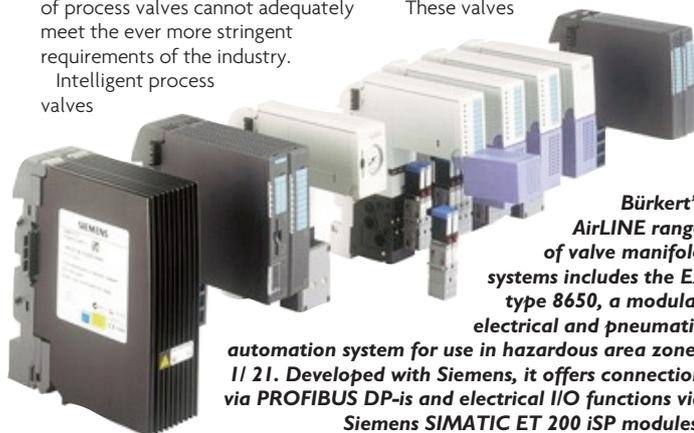
More modern process control systems can capture in-line data which can be exported to a database for analysis. This continuous monitoring ability not only meets production requirements it can also identify any anomalies very quickly and can either raise an alarm or make the necessary adjustments.

● **Competition**

Companies operating in the competitive global market are however forced to make their production processes not only safe and hygienic but also as efficient as possible. This has led to an increased demand for improved automation solutions at process level.

However, the conventional approach of centralised automation of process valves cannot adequately meet the ever more stringent requirements of the industry.

Intelligent process valves



Bürkert's AirLINE range of valve manifold systems includes the Ex type 8650, a modular electrical and pneumatic automation system for use in hazardous area zones II/21. Developed with Siemens, it offers connection via PROFIBUS DP-is and electrical I/O functions via Siemens SIMATIC ET 200 iSP modules.

with integrated automation functions offer a viable and efficient alternative.

● **Efficiency**

Levels of efficiency are determined by the scale of the production facility, however improving the levels of automation with a process of any scale can deliver improvements to maintenance costs, production cost, reliability and, most importantly, quality.

Improved control and monitoring also reduces wastage of expensive compounds, provides improved production reliability, while also delivering the continuous data required to meet regulatory standards. By making significant reductions in costs, a properly engineered production system can deliver high quality products in an efficient process.



Intelligent control heads on various sizes of process valve in a production environment. Using the TopControl Type 8691 from Bürkert allows full valve control using a fieldbus network, reducing the wiring required by decentralising control.

Three-way approach

● **Centralised**

The centralised control concept is the most traditional approach to process automation and although somewhat displaced in many larger plants, centralised cabinet solutions with automation systems for electrical and pneumatic signals have certainly not lost their importance.

Pneumatically operated valves are currently used at numerous points within production plants in the food and beverage industry.

These valves

control air lines can be quite long, which increases air consumption and has a negative effect on the switching times of the fittings. The situation is exacerbated even more by the high power requirement – for example for evacuation of air from chambers and hoses – which is undesirable in terms of energy efficiency. The fact that the pilot valve operating level can be a considerable distance from the fitting makes it even more so.

● **Decentralised**

In many cases, especially in larger facilities, working towards a decentralised system of process control can provide a number of benefits compared to the more traditional approach. This concept uses intelligent, pneumatically operated process valves at the field level which can be equipped with all the required automation components such as a pilot valve with manual actuation, electrical feedback units and optical status indication, fieldbus interfaces and even positioners and process controllers.

By integrating an AS interface as a fieldbus interface, the entire range of advantages of this approach can be fully utilised. All that is required for the power supply, feedback and communication is a two wire cable

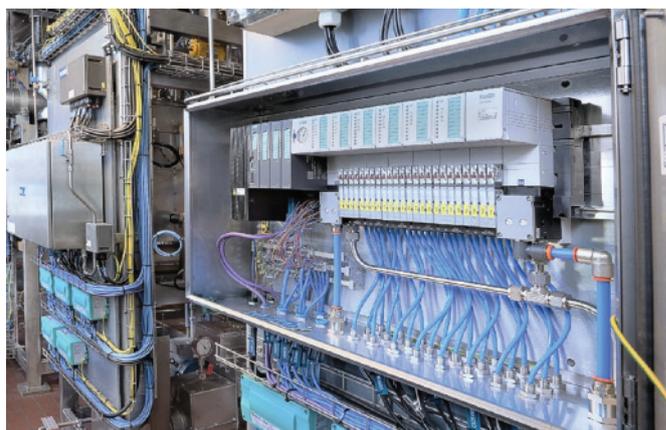
connecting the PLC with up to 62 valves.

Each process valve is connected directly to the main compressed air supply line in the field, allowing these connections to be kept as short as possible. This reduces the number and length of hose and wire connections as well as the number of required control cabinets to a minimum.

The valve systems themselves are designed specifically for use within a hygienic environment. As a result, they feature the high IP rating required by the actual application and are made exclusively of detergent-proof materials. The IP rating is therefore not affected by prolonged use in environments with high air humidity or by frequent cleaning with aggressive chemicals.

In addition to better hygiene, there are other advantages to reduced electrical wiring and fewer control air lines. Even prior to commissioning, users benefit from the decentralised concept as it simplifies project planning and allows for more flexible solutions, thanks to easier integration of the process and automation levels. This also applies to any subsequent installation, commissioning and maintenance. Furthermore, the inclusion of a clearly visible status indicator,

Fully centralised process control solutions are appropriate where connections are close-by, but not ideal for larger scale applications where connected valves are spread over a wide area.





Intelligent valve control heads allow each process valve to be connected directly to the main compressed air supply line in the field, allowing these connections to be kept as short as possible. This reduces the number and length of hose and wire connections and the requirement for additional control cabinets.

integrated into the fitting, allows the operator to monitor processes and the operating status of valves not only at a central control point but also directly at the location of the fitting.

● **Local**

To bridge the gap between centralised and decentralised automation concepts, flexible pneumatic valve units and compact automation systems can be used. These

units are wall mounted directly inside small, hygienically designed control cabinets that can be installed close to the process in question. These small, pre-configured and standardised units eliminate the long runs to valves and field devices, and can be easily kept clean.

Bürkert's new AirLINE Quick is pioneering this concept. The AirLINE Quick adapter is a complement to Bürkert's valve terminals and automation systems, which are designed for use in many different areas of hygienic processes and readily fulfil the high standards demanded by hygienic applications.

This compliance is ensured by the integrated process safety features of the type 8640 valve terminals and type 8644 automation system: features that are especially important in hygienic processes.

For example: check valves integrated in the exhaust air galleries ensure that during system emergency stop situations all actuators are shut down simultaneously and safely. These units also prevent back pressure accumulation in a valve block, which could result in unwanted switching of a valve.

In addition, Bürkert's HotSwap function allows replacement of valves, even during operation, without loss of air pressure on the entire valve block.

With AirLINE Quick, all pneumatic connections, the fieldbus interface and the I/O modules can be mounted directly in the control

cabinet. This facility allows for an altogether smaller design of control cabinet, where additional components such as pipes, cables or control cabinet connections are eliminated, due to direct mounting, further reducing the time needed for installation and commissioning.

Conclusions

With the development of practical solutions that integrate automation functions into the pneumatic actuators of process valves, the advantages of decentralised automation have become a real alternative to control cabinet systems for many users.

Companies in the food and beverage sector are now in a position to reconcile the commercial necessity of a high degree of automation of their production with the requirements of hygiene and safety. Thanks to their modular structure, systems based on intelligent process valves can be adapted to suit many situations and applications, whereby such optimised solutions are always based on high quality, tried and tested components with a long service life.

By employing its three tier automation approach, Bürkert is able to provide independent consulting and flexible hygienic processing control solutions from a single source. With a high degree of standardisation and state-of-the-art



With AirLINE Quick, all the pneumatic connections can be mounted directly on the control cabinet base or side, via a single aperture. This enables small local cabinets to bridge the gap between centralised and fully decentralised systems.

design, these solutions can make the engineering and commissioning of automation systems much easier and less costly.

In addition, end-users benefit from plant standardisation, with easier plant monitoring and diagnosis, as well as reduced costs for maintenance and ownership of their facilities. ■

Bürkert control head improves automation for Teisseire

As the leading fruit syrup manufacturer in France, Teisseire required Bürkert to deploy one of the company's latest innovations to achieve decentralised control and aid process performance as well as integration.

The project scope was to introduce a new fluid control system which would accommodate third party control valves but also provide fieldbus communications to improve the management of the production line. Another goal was to reduce the overall maintenance stores inventory, so using just one control head type (8681) would make a significant reduction in spares.

The existing valve control system was approximately 15 years old and consisted of an assortment of different control heads, some manual, some automated, but the wide variety of components did not interact well together and overall performance was inefficient. One of the problems stemmed from the existing air supply which included oil mist from the compressor and was not suitable for control of hygienic valves, which had prevented any upgrade to a more modern control system in the past.

The 8681 control head.



With a decentralised automation concept, the control head takes over all pneumatic actuation, feedback and diagnostic functions up to and including fieldbus communication. The housing is easy to clean and features proven electrical IP protection and chemically resistant materials for use in hygienic processing in food and beverage industries.

With a decentralised automation concept, the control head takes over all pneumatic actuation, feedback and diagnostic functions up to and including fieldbus communication. The housing is easy to clean and features proven electrical IP protection and chemically resistant materials for use in hygienic processing in food and beverage industries.

By using the 8681 control head, with its universal adapter, it can be combined with all normal commercial butterfly valves, ball valves, single and double seated valves. In addition to the main production controls, the plant also has a clean-in-place (CIP) system which was originally a manually controlled process. As part of the planned improvements, the CIP system was to be integrated into the fully automated control system, which would greatly reduce the overall time required by maintenance engineers to perform this operation.



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Cracking the food safety code in a global supply chain

The global ready meal and frozen food market has grown considerably in recent years, benefiting from the globalisation of the food industry. However, with globalisation comes an increasingly complex food supply chain. In light of recent food safety scandals, food brands around the world are having on-going issues with consumer trust.

by **Chirag Sheth, Global Marketing Manager, Videojet Technologies, UK.**
videojet.co.uk

But what precisely is the role of product traceability in ensuring food safety? What are the challenges, and how can they be overcome?

Traceability

Regional food safety crises in recent years, from the horsemeat scandal in the European Union (EU), to bird flu in East Asia, to fears over radiation in the aftermath of the Fukushima nuclear accident in Japan, have impacted on consumer trust in the products they buy from their local supermarket.

These issues mean that the manufacturers of ready meals and frozen food, with the complexity of their products and the large number of raw ingredients, are under particular pressure to identify the source of all the materials used on their production lines to ensure optimum product safety and quality.

Traceability, using appropriate technology and data monitoring systems, plays a key role in allowing manufacturers to meet



these challenges, enabling them to fully understand the origins of all the raw materials used in their products. This means knowing not just where the ingredients have come from, but also how they have been grown, such as whether organic methods have been used, or in the case of meat and animal products, what standards of husbandry they have been reared in.

Knowing and demonstrating such information is crucial to give interested end-consumers the confidence that the products they are buying are truly organic, or sourced from accredited farms and in what country.

Furthermore, it also helps to ensure the safety of the products, demonstrating due diligence to regulators in the event of a product recall and showing that every measure possible has been taken to minimise the risk to the public.

In addition to the benefits to the brand's reputation though, food manufacturers have a legal obligation to uphold stringent traceability requirements in order to comply with international food safety regulations.

The EU's General Food Law, the US's recently introduced Food Safety Modernization Act, and China's Food Safety Law all stipulate the implementation of solutions to facilitate traceability.

International manufacturers must conform to these clauses to retain access to these lucrative markets.

Overcoming barriers

Despite the importance of optimum traceability on production lines, there remain a number of challenges that food manufacturers have to overcome to ensure they can follow their products correctly through their supply and distribution chains.

The global food supply chain has become increasingly complicated over the last decade. For many multi-national manufacturers now, raw ingredients are sourced from one country, processed and packaged in a second, and sold by retailers in a third.

Adding further to this complexity, more and more safety regulations now require manufacturers to print the country of origin



of the product on its packaging – usually the nation from which the raw ingredients have been sourced.

This can be straightforward if all the raw ingredients come from a single country, but many ready meal products may well be made from ingredients sourced from multiple markets.

Manufacturers have to ensure that they have the infrastructure in place to keep track of product batches as they move through the supply chain. They also need to store and analyse batch information as well, about the nature and provenance of ingredients, as well as data about foreign body contamination or product quality.

Code legibility and accuracy is another barrier to optimum product traceability. Codes need to be able to be read easily by track and trace equipment, which means that coding technology is required to be capable of precision printing on packaging at high speed so as not to impact on line throughput rate.

To further optimise productivity, particularly on food lines that manufacture a range of products in short runs, and minimise the risk of incorrect codes being printed on product packaging, coding equipment needs to facilitate quick and easy product changeovers without compromising on production uptime.

In addition, harsh production or storage environments can have an impact on effective product traceability. For example, high airborne moisture has been known to cause problems with the adhesion of standard inks during printing, preventing

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them drying and making them prone to smudging, affecting the legibility of the finished code.

Breaking down barriers

There are solutions available on the market now that are capable of overcoming the traditional challenges to effective product traceability, even across complex multi-national supply chains. Traceability solutions that offer fully integrated production floor hardware and software systems can enable manufacturers to code each individual item within a batch, and then store the data about each coded product.

This allows them to capture in-depth information about the movement of each product pack across their supply chain, optimising safety and quality control, as well as minimising the risk of products from unsafe sources reaching end consumers.

The data can also be fed into business applications, including Enterprise Resource Planning (ERP), to support manufacturers in analysing where improvements can be made to their operations to optimise productivity.

To further enhance the efficiency and productivity of their operations, manufacturers can take advantage of coding systems that support production



line flexibility. There are code assurance solutions, a subset of a strong traceability system, available that can integrate the coding printer with a centralised database, which allows machine operatives to select from a vast number of saved codes during a product changeover, and enables them to set up multiple systems from a single location. In doing so, it minimises printer set-up time, while reducing the risk of coding errors.

This boosts production uptime and productivity without compromising on coding precision and regulatory compliance. For challenging production lines, manufacturers should opt for hardware specially designed for harsh environments that can resist ink and dust build-up in the ink nozzles that can cause ordinary printers to shut down.

Specialised inks provide scratch and rub resistance on flexible packaging, and offer

extra adhesion to waxy substrates on packaging such as boxes, as well as on general purpose plastic packaging, minimising the risk of codes rubbing off or becoming illegible in transit.

Manufacturers should also consider Ingress Protection (IP) 65 rated (dust and water protection) hardware, especially if production lines are regularly washed-down.

By selecting such systems for their production lines, ready meal and frozen food manufacturers can overcome barriers to optimise traceability throughout their supply chain, ensuring they comply with legislation and reinforce consumer trust in their brand.

Tracking down solutions

The global food industry is set to grow considerably over the next few years, with some experts predicting it will be worth as much as \$3.03 trillion by 2020, driven by exports from China and the West. This growth will create challenges for manufacturers seeking to ensure optimum safety for consumers. However, with the right traceability and coding tools, manufacturers can follow their products through the global supply chain, ensuring they offer consumers food that is safe and high quality. ■

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Safeguarding consumers and businesses with better allergen testing

The need for food businesses to have an effective hygiene regime in place to accurately declare food allergens is evident – with poor standards of hygiene and a lack of correct protocols, businesses are simply not able to certify that their products are completely free from any cross-contamination.

by Dr Mike Bromley,
Genon Laboratories, UK.
genonlabs.co.uk

Recent changes to legislation around food labelling and growing public awareness of food authenticity issues mean it is becoming increasingly important for businesses to have robust allergen management strategies in place in order to protect their customers – and their own reputation.

Exposure to allergens

Between 1-5% of the world's population have a clinically proven food allergy, with two million people in the UK alone suffering from an allergy that severely affects their life on a daily basis. Whether this is through exposure to allergens or indirectly through the fear of being exposed, the risk presented for individuals with food allergies or intolerances is very real.

Consuming even a small amount of a food allergen can result in severe illness and in some cases, can cause fatal anaphylactic reactions. In fact, recent reports suggest that 5-10 people each year die in the UK alone because of food allergen



exposure. What's more, for many individuals the amount of allergenic substance within a foodstuff is irrelevant, as some allergies are so severe that even a trace amount of a contaminant can have a devastating effect on the sufferer. This means that the science behind allergen testing needs to be as faultless as possible in order to eliminate risk – and the pressure on food businesses to step up their game is mounting.

It is common knowledge amongst food manufacturers that there is a risk of cross-contamination between a specific food product and a common allergen such as nuts or peanuts. These risks are traditionally conveyed to customers via advisory warning statements such as 'may contain nuts' and in recent years this sort of labelling has been extended to include products like sesame seeds, egg, milk, fish, and shellfish.

Whilst some food producers and retailers are already using advisory labelling to warn consumers about

such risks, there is growing concern about the overuse of such labelling, which can be seen as a tactic used by businesses to protect their reputation.

As such, this 'one-size-fits-all' approach will no longer meet the required expectations of the savvy and vocal consumers of today.

Public awareness of food safety has never been greater thanks to global media reporting and social media has given consumers worldwide a platform to air their outrage towards businesses who are perceived as being negligent, deceptive – or simply not doing enough to cater for and inform consumers with allergies.

Clear labelling required

Since the introduction of new legislation in December 2014, it is now required by law that all pre-packaged foods and foods sold loose should be clearly labelled with any potential allergens.

All food providers including manufacturers, suppliers, caterers and retailers need to communicate with customers where any of the 14 most common allergens are present, or risk facing a large fine.

In short, these factors mean it is becoming essential for businesses to incorporate robust allergen management procedures into health and safety policies.

Actively avoiding cross contamination and using appropriate advisory labelling will help businesses ensure their customers are confident in purchasing and consuming their products.

With the food on our shelves and plates coming from an ever-increasing number of sources worldwide, the number of possible contaminants is vast, and yet the industry's capability to detect them has become increasingly limited by the existing technologies on offer.

While risks can be reduced with internal risk analysis, increased supplier checks, regular auditing, and staff training, it is essential for all B2B and B2C food businesses to continually measure the effectiveness of the procedures they have in place – and improve them where necessary.

Even the most experienced and diligent of organisations can fall foul of complacency laws so it is crucial for businesses at each step of the supply chain to be extremely vigilant and ensure they have best-practice procedures in place.

Unless businesses employ dedicated, on-site technical staff teams to ensure each allergen-detection procedure is followed rigorously, it is possible that some things may be

Continued on page 14



Continued from page 13
missed or overlooked. However, the sheer level of industry experience, scientific expertise training and knowledge of legislation needed by such employees is vast and subsequently employing an in-house team to carry out this function is unsurprisingly a very costly option.

With this in mind, it is certainly worth considering calling on outside resource and support in order to ensure compliancy and to safeguard the business as a whole.

The good news for the industry is that advancements in technology

means that new products are available on the market which allow thorough and reliable allergen testing for all 14 contaminants laid out in the most recent legislation. The even better news, particularly for smaller businesses with tighter budget restrictions, is that these technologies are both affordable and accessible.

Experts in allergen testing

At Genon, we are experts in allergen testing and offer a vast range of comprehensive allergen testing covering the 14 allergens pinpointed by the 2014 legislation as well as several more.

The emergence of fast and affordable testing methodologies like this means that companies of all sizes and at each stage of the supply chain should be able to minimise the risks outlined above, ensuring they are demonstrating awareness and care around allergen issues such as cross-contamination. All food businesses along the supply chain need to establish a suitable health and safety policy that



includes a robust allergen management plan – and manufacturers need to not only assess the allergen status of ingredients for use in their own premises, but place the same level of scrutiny on the ingredients supplied by any suppliers, contractors, or partners.

For compliancy it is essential for food businesses to be aware of the presence – or poten-

tial presence – of major allergens within food products at all stages of the food chain; from harvesting and transport through to manufacturing and packing.

Whether it be through audits or from asking suppliers to provide the required information, manufacturers should ensure that materials are ordered against a clear specification and that they ask appropriate questions of their suppliers. In order to ensure this is happening, third party support may be the best option for many UK businesses. ■





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Keeping mycotoxins under control with accurate detection

Bio-Check (UK), a specialist producer of food testing kits, offers systems for mycotoxin testing.

biocheck.uk.com

In March this year, two reports warned of mycotoxin concerns in the supply chain. North American Harvest analysis indicated that Type A tricothecenes (produced by *Fusarium* moulds) are on the rise in corn and a second report (Alltech) found that multiple mycotoxins were present in 20% of samples



from 2015 wheat, barley and corn being exported by the major cereal producing regions of the world.

Bio-Check (UK) offers a number of different approaches to mycotoxin testing including the ToxiQuant instrument which, with high accuracy and precision tests, simultaneously detects multi-toxins. It also offers a range of lateral flow based tests that use a reader to quantitate levels of aflatoxins, M1, DON, fumonisins, and ochratoxin in minutes. The food industry has a heightened interest in improving their testing to identify and prevent contamination, following the latest BRC Global Standard for Food Safety, Issue 7.

It is increasingly being encouraged to conduct sampling and testing at all stages of the supply chain.

Bio-Check's many years' experience in food analysis enables it to advise industry on the best choice of sampling, sample preparation and testing methods.

Fast, accurate and easy to use pathogen detection

Designed to offer fast, accurate and easy-to-use pathogen detection, in a lightweight construction to provide greater testing flexibility, the DuPont BAX System X5 is an automated, PCR-based detection method that helps food companies, service laboratories and government agencies detect pathogens in raw ingredients, finished products and processing environments.

fooddiagnostics.dupont.com

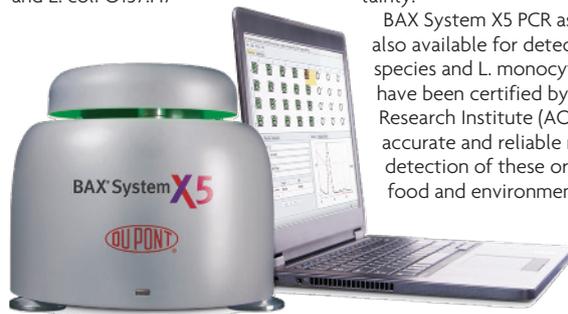
It now has extended AFNOR Certification validation to include the latest BAX System X5 PCR assays for salmonella (QUA 18/03-11/02) and E. coli O157:H7

(QUA 18/04-03/08) in raw meats, raw milk, fruits and vegetables.

"AFNOR Certification is particularly important to the European food industry, where validation according to ISO standards is a requirement before an alternative method can be adopted by food companies or contract testing laboratories," Hugo Gonzalez, EMEA sales leader for Diagnostics, DuPont Nutrition & Health, told International Food Hygiene.

"Validation of the BAX System X5 by AFNOR Certification allows customers to use these assays to quickly and reliably detect salmonella and E. coli O157:H7 with certainty."

BAX System X5 PCR assays are also available for detecting *Listeria* species and *L. monocytogenes* and have been certified by the AOAC Research Institute (AOAC-RI) as an accurate and reliable method for detection of these organisms in food and environmental samples.



The smartest investment for food quality control

The analysis of sugars, organic acids or additives like sulphites is key to control the quality of products in food and beverages.

biosystems.es

Automation of enzymatic and chemical methods in photometric analysers are a sensitive, reliable and cost-effective way to identify these

substances in food, beverages and biological processes like fermentations.

BioSystems provides a complete system with a wide range of reagents and different autoanalysers like Y-15, Y-25 and Y-350, to identify these substances in the best possible way.

BioSystems Y-15 is an automatic biochemistry analyser with a low consumption of reagents and a minimal maintenance to reduce laboratory operating costs. The software supplied has been custom-designed for this kind of analysis with a user-friendly interface and it includes preprogrammed techniques validated by BioSystems R&D department. Y-15 performs 150 tests per hour and contains different wavelengths used in food analysis.

BioSystems reagents are ready to use and dedicated to Y-15, avoiding manipulation to improve performance.

To complete the food analysis range, BioSystems also provides reagents to check mycotoxins or allergens through immunoassay.



Effective sampling for accurate reporting

Polywipes from Medical Wire are premoistened sponge swabs ready to use, and suitable for many sampling applications in food production.

mwe.co.uk

The bright blue sponges are premoistened with a choice of buffers including the standard Phosphate Buffer with Thiosulphate (for food production areas), Neutralising Rinse Solution (for sampling after biofilm removal), or Peptone Saline (for carcasses).

Different formats are available with disposable gloves, and write-on plastic bags or plastic containers for transport and processing.

Some sponge materials can be harmful to bacteria, making them ineffective for accurate sampling. Polywipes material is carefully selected and prepared so that it is

non-inhibitory, and gives good recovery, even for fastidious organisms such as clostridium. The material is also structured so that it does not disintegrate during use and leave particulates which could contaminate food products.

Sponge swabs are the recommended sampling devices for larger areas such as conveyer belts, benches or tables, and also food contact surfaces on machinery.

Polywipes are the ideal choice for accurate and dependable surveillance.



Data loggers with automatic upload to a cloud server

TR-7wf series data loggers for temperature and humidity from T&D Corporation automatically save current readings on T&D's free of charge WebStorage Service via wireless LAN. This facilitates easy monitoring of current data, graphic displays and alerts as well as downloading of recorded data.

tandd.com

Mobile access is also possible at any time from anywhere via the internet or the ThermoWeb app, which is available for iOS and Android. All devices can also connect via USB for setup and data download onto a computer when an internet connection is not available. A warning notification can be sent via email or the ThermoWeb app. The

economic TR-7 series consists of three wireless LAN models (TR-7wf) and three wired LAN models (TR-7nw).

Each of the small and easy to fix data loggers serves different measurement ranges, which vary from -60°C to 155°C and from 0-99% RH. Their flexibility makes the TR-7 data loggers ideal for monitoring large areas and difficult to access



spaces precisely. They can be utilised in laboratories, processing areas and cold storage rooms.

Enhanced food safety with multiple screening of drug residues

Backed by extensive research and over £200m of investment, Biochip Array Technology (BAT) has made screening simple by providing results for multiple analytes from a single sample.

randoxfood.com

The multiplex technologies screening of drug residues is done on a 9x9mm biochip presenting different test sites in Discrete Test Regions defining arrays of miniaturised immunoassays. This means that by using only one 9x9mm biochip, which can contain up to 22 tests, there is no need to use the same number of individual standard ELISA test kits.

These biochips are also the vessels where the simultaneous immunoreactions take place and are used in conjunction with the Evidence Investigator, a quantitative



drug residue screening analyser. The addition of sample, reagents and washing steps are carried out manually, whereas the detection and processing of test results are automated operations performed by the biochip analyser Evidence Investigator.

BAT is also applicable for a variety of matrices and represents Randox Food's efforts to consolidate screening in various sectors of the food industry including meat producers, fisheries, grain and feed providers and honey processors.



Leak-proof specimen containers offer secure transportation

SampleTite leak-proof specimen containers from Alpha Laboratories Ltd are ideal for the collection and secure transportation of fluid or solid-state specimens.

alphalabs.co.uk

The polyethylene caps are dual-threaded and provide a super-positive seal with the polypropylene jars. They are tough, shatter-resistant and tested up to 95kPa.

SampleTite containers are available in 20, 40, 60, 90 and 120ml sizes. The 60, 90 and 120ml sizes are



also available in sterile versions, with a tamper evident label.

SpeciSafe is a unique concept that makes sample packaging much less of a chore. It replaces the secondary packaging and combines the absorbent material and rigid container within a single piece, saving time



and money.

SpeciSafe packs are available in a range of designs to fit perfectly around commonly used 95 kPa sample vessels. They include packs for single or up to 10 sample containers. One side is made of clear plastic to enable visibility of sample details without unpacking and to provide visible spillage indication to protect the user.

Simple and rapid swab test provides definitive analysis

While it can be obvious that some dishes contain an allergen, others can have just a trace of a problematic food that can not be seen, often caused by cross contamination. For example particles of gluten can be present on food production lines, preparation surfaces and utensils. For someone with a severe allergy to gluten, these few particles are enough to trigger a potentially serious reaction.

r-biopharmrhone.com

Well trained and careful staff can try their hardest, but rigorous cleaning procedures do not always rid surfaces of contamination. With that possibility comes the spectre of product recall and the loss of customer or consumer confidence.

As time is precious, a simple and rapid swab test which can tell you if your cleaning procedures have worked is essential.

R-Biopharm Rhône offer tests like

the RIDA QUICK swab test to help companies stay confident that their products meet the stringent standards demanded for a wide range of different allergens not only in the EU but increasingly worldwide.

Providing a definitive analysis within 10 minutes they can be used to ensure that food preparation areas meet industry standards.





Automated real-time PCR solution for food pathogens

Bio-Rad Laboratories is a leader in food testing using molecular biology. Combining DNA extraction and PCR plate set-up with Bio-Rad's real-time PCR system provides an efficient integrated automated solution for food pathogen testing.

bio-rad.com

Optimal ease of use and traceability is achieved by using true user-friendly software that can easily connect to LIMS. The iQ-Check Prep Solution provides increased confidence, high reproducibility and robustness to routine testing laboratories. It fits seamlessly in laboratory work flow and is an ideal solution for medium to high throughput testing laboratories.

- Fully automated DNA extraction and PCR plate set-up.
- Increased flexibility.
- Fully automated detection and data analysis.
- E-mail notification of results.
- Run up to four different iQ-Check assays simultaneously (salmonella, listeria, STEC).
- Performs over 500 tests in an eight hour shift.
- Improve traceability with barcodes and LIMS integration.
- Real-time monitoring of each pipette step and liquid level.
- Internationally validated protocols (AFNOR, AOAC, NordVal).
- Ready-to-use, load and go reagents.
- Intuitive and integrated user interface.

Automated growth curve analysis system

Doing growth curves? Would you like a system that can measure them faster, easier and more accurately?

growthcurvesusa.com

The Bioscreen C automated growth curve analysis system can



create up to 200 growth curves from 200 samples with unattended operation. Simply load it, set it, walk away and then return for the completed results.

It will save you time, speed results, enhance control, providing reproducible growth curves.

Hundreds of laboratories that use Bioscreen C enjoy the following benefits:

- Accurate, reproducible results.
- No cross-contamination, condensation or evaporation of samples.
- Excellent growth curves with interpretation.
- Faster results with up to 200 samples per run.

Simplified enrichment and sample preparation for food testing

You can now make the most of your laboratory time with easier, safer and more streamlined sample enrichment and preparation solutions from a leader in culture media.

thermofisher.com

Whether you need benchtop filling, dispensing or homogenising for your samples, Thermo Scientific enrichment and sample preparation solutions are designed to maximise efficiency and enhance your workflow.

Thermo Scientific Dry-Bags Enrichment Media greatly reduce the time and labour involved in preparing large volumes of media and diluents. With no handling of glassware or weighing of culture media required, your laboratory is set to run safer.

The Thermo Scientific Peristaltic Pump is the perfect benchtop pump for filling Dry-Bags Enrichment Media. Easy-to-use, quick to set up and lightweight, the pump adds convenience and performance to your workflow.

The Thermo Scientific Diluflux Dilutor is a compact, easy-to-use, automated gravimetric dilutor designed to deliver precise quantities of diluents with the touch of a button so that you can work more confidently and more accurately.

The Thermo Scientific Homogeniser is an easy-to-use, powerful laboratory blender designed to homogenise samples quietly and effectively in less than a minute for maximum productivity.



Plate reader software delivers expanded reading capabilities

3M's Food Safety Business has announced software enhancements to its Petrifilm Plate Reader, a popular peripheral device that serves as an automated alternative to the more time-consuming task of manually counting and documenting colonies of bacteria on Petrifilm count plates.

3m.co.uk

The new Petrifilm plate reader software version 4.0 now automates the imaging, interpretation and data mapping of the Petrifilm Rapid Aerobic count plate, which debuted last year as a novel 24-hour test.

In addition, this release also makes functionality for the Petrifilm Enterobacteriaceae count plate and Petrifilm Select E. coli count plate globally available.

The software upgrades are part of

3M's continued effort to increase efficiency and reduce costs within food safety laboratories globally, as well as improve the documentation and traceability of their indicator testing results.

Traceability has drawn increasing attention in legislative and regulatory discussions around the world due to the globalisation of the food supply chain and its critical role in protecting public health.





Water-based line of mycotoxin tests launched

Neogen Corporation has developed an improved, quick and easy new line of mycotoxin tests that use water as the solvent in the extraction process. The new mycotoxin tests will all use a common water-based extraction – and will enable testers to test for up to six mycotoxins from the same prepared sample.

neogeneurope.com

Reveal Q+ MAX for aflatoxin is the first test in the line that is available, and it can deliver precise results ranging from 2-300 parts per billion (ppb) of aflatoxin after only six minutes.

The test detects the four principle types of aflatoxin, B1, B2, G1 and G2, with superior cross-reactivity when compared to other available aflatoxin tests.

Coupled with AccuScan readers, the Reveal Q+ MAX system objectively reads, analyses and stores test results.

The ability to test the same sam-

ple for up to six mycotoxins represents potentially significant cost and time savings for grain testers.

Until now, testers had no choice but to prepare separate samples for each mycotoxin to be tested, by far the largest time-consuming element of the entire testing process. Reveal Q+ MAX products will eliminate the need for that duplication.

Neogen offers a comprehensive range of food safety diagnostic test products for foodborne bacteria, mycotoxins, drugs, allergens, and other concerns.

Its full line of mycotoxin test kits detect aflatoxin, aflatoxin M1, deoxynivalenol (DON), fumonisin, ochratoxin, T-2/HT-2, and zearalenone.

Because aflatoxin is a known severe threat to human and animal health, more than 100 countries have established regulatory limits for it in commodities intended as human food or animal feed. The toxin is a by-product of mould growth in a wide range of commodities, including corn.

LIMS software offers feature-rich solutions for laboratories

CAT Squared's LIMS software was designed with input from some of the largest food processors in the world, including Cargill and Rose Acre Farms.

catsquared.com

From developing a process structure for sample collection that mirrors real-world manufacturing activities to creating testing-and-results collection steps to optimise laboratory performance, their development partners provided invaluable input to create feature-rich solutions for laboratories.

LIMS integrates laboratory results with other plant floor data, which ensures that samples are collected and tested correctly and that nothing gets shipped without being properly released.

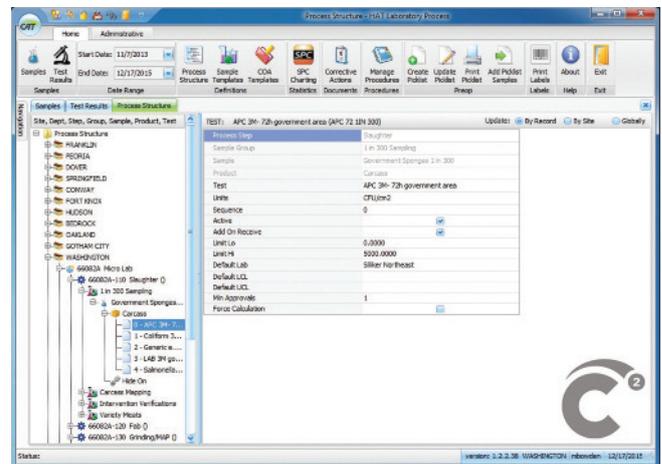
LIMS begins with time-based plant

floor sampling. Users may schedule and monitor samples, and the system will automatically send out email or SMS notifications when samples are late or have been missed.

Once samples are collected, LIMS generates documentation for each batch as part of a bar-coded chain of custody.

Samples are then accepted and registered into the laboratory with instructions for performing each test. User-defined standard operating procedures ensure that personnel follow the appropriate procedures. Analytical instruments may be integrated to capture test results automatically.

With LIMS, information flows more efficiently, and product is shipped in a timely manner; the bottom line is improved, while accuracy and compliance are ensured.



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Method comparison study of food and environmental samples

As part of the NF validation for AFNOR certification of Neogen's ANSR for Listeria the expert laboratory, ADRIA Développement in France conducted a method comparison study of food and environmental samples. The study compared Neogen's ANSR for Listeria (kit 9871) in accordance to ISO 16140-2 (FDIS 2015) with the reference method, ISO 11290-1/A1 (2004).

by Neogen Europe using findings from ADRIA Development, France. neogeneurope.com

Neogen's ANSR for Listeria was assessed in line with AFNOR technical rules, and included single samples as well as the option to pool up to 10 enriched samples.

The reference method protocol used was ISO 11290-1/A1 (2004): Microbiology of food and animal feeding stuffs – Horizontal method for the detection and enumeration of Listeria monocytogenes – Part 1: detection of Listeria monocytogenes in foods. For method comparison, the following criteria were evaluated during the validation study:

- The sensitivity study.
- The relative levels of detection.
- The inclusivity and exclusivity.
- The practicability.

Samples

In total 449 artificially and naturally contaminated samples were analysed across six category types including:

- Composite foods ready-to-eat and ready-to-reheat.
- Meat products.
- Milk and dairy products.
- Vegetables.
- Fish and seafood.
- Environmental samples.

Confirmation

The positive ANSR tests were confirmed by streaking 100ul of LESS broth onto O&A and Palcam plates.

	Response	Reference method	
		Positive (R+)	Negative (R-)
Pooled samples	Alternative method positive (A+)	Positive agreement (A+/R+) PA = 119	Positive deviation (R-/A+) PA = 38
	Alternative method negative (A-)	Negative deviation (A-/R-) ND = 31 (PPND = 1)	Negative agreement (A-/R-) ND = 261 (PPNA = 7)
Individual samples	Alternative method positive (A+)	Positive agreement (A+/R+) PA = 120	Positive deviation (R-/A+) PA = 40
	Alternative method negative (A-)	Negative deviation (A-/R-) ND = 30 (PPND = 5)	Negative agreement (A-/R-) ND = 259 (PPNA = 10)

Table 1. Summary of results. PP: Positive presumptive non confirmed samples, PD: Positive deviation (R-/A+), ND: Negative deviation (A-/R-).

During the validation study, the typical colonies were identified by the tests described in the reference method.

Summary of results

A summary of the results obtained with the reference and the alternative method for all samples is shown in Table 1.

31 negative deviations were observed for the pooling protocol and 30 for the individual protocol, 22 samples with artificially contaminated samples and 11 with naturally contaminated samples. Listeria spp was detected only in five samples by recovering the strains on selective agars. 26 negative deviations were probably due to the unpaired study design and the related sampling heterogeneity.

Additionally, Listeria spp. was recovered from seven samples with negative agreement results; two of them were artificially contaminated and five naturally contaminated. In many cases, only few colonies were observed on the selective agars of the confirmation procedures of the alternative method. No additional confirmation was obtained using the ISO method protocol from the LESS Plus broth.

40 positive deviations were observed with the individual protocol and 38 with the pooled samples protocols. 33 concern naturally contaminated samples and seven artificially contaminated samples.

The number of observed deviations confirms the low levels of the inoculation or natural contamination.

Relative level of detection

The relative level of detection (RLOD) is defined as the ratio of the alternative and reference methods. Nine (matrix/strain) pairs were analysed by the reference method and by the alternative method.

The samples were first analysed by the ISO 11290-1/A1 standard in order to verify the absence of Listeria spp. A total viable count microflora was realised.

In the method workflow, the pooled samples are firstly analysed as a screening step. If positive results are observed, the samples are analysed individually in order to identify the contaminated one.

In order to validate individual sample analyses and pooled sample analyses, the relative level of detection was determined using:

- Individual positive samples.
- Individual positive samples pooled with 9ml of negative samples and separate enrichments from the same matrix.

Further to calculations, the RLOD were found to be below the maximum acceptability level allowed. This applied to unpaired studies for all the tested matrix/strain pairs and for both pooling and single protocols.

Inclusivity/exclusivity

Inclusivity is the ability of the alternative method to detect the target analyte from a wide range of strains. Exclusivity is the lack

Continued on page 20

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of interference from a relevant range of non-target strains of the alternative method.

Some 20 *L. monocytogenes* strains, 30 *Listeria* spp strains and 30 non-target strains were tested by the ANSR method and the ISO standard. The 50 target strains gave a positive result. No cross reaction was observed among the 30 non-target tested strains.

Practicability

For ANSR *Listeria*, negative results are available in one day and positive results in two to three days instead of three to five

days for negative and five to seven days for positive results using the reference method.

Conclusion

The method comparison study scheme corresponds to an unpaired study design as the alternative and reference methods do have different enrichment procedures.

In the sensitivity study, six categories were tested: five food categories and the environmental samples. The single protocol shows 40 positive deviations (PD) and 30 negative deviations (ND) for the overall categories. The pooled protocol shows 38 positive deviations (PD) and 31 negative deviations (ND) were observed with the

pooled samples. The ND - PD is within the acceptability levels (AL) whatever the category and protocol, and as well for the six tested categories. Whatever the protocol, i.e. single or pooling, the number of PD is higher than the number of ND.

The ANSR method for *Listeria* allows a one-day screening of the negative samples.

The ANSR method for *Listeria* with the single and pooling protocols fulfils all the ISO 16140-2 (FDIS, 2015) and AFNOR technical rules requirements.

The interlaboratory study

Following the initial report from ADRIA Développement, a collaborative study was carried out in December 2015. Some 13 laboratories took part in the study located throughout the EMEA region (Europe, Middle East and Africa).

Collaborative study laboratories and the expert laboratory carried out the analyses on Tuesday 15th and Wednesday 16th December 2015 with the alternative and reference method.

The method comparison study scheme corresponds to an unpaired study designed as the alternative and reference methods have split enrichment procedures.

The conclusions from the interlaboratory study were in line with the Method Comparison Study. ■

Table 2. Summary of the obtained results with the reference method and the alternative method for level 1.

	Response	Reference method	
		Positive (R+)	Negative (R-)
Single protocol	Alternative method positive (A+)	Positive agreement (A+/R+) PA = 79	Positive deviation (R-/A+) PA = 9
	Alternative method negative (A-)	Negative deviation (A-/R+) ND = 12 (PPND = 1)	Negative agreement (A-/R-) ND = 4 (PPNA = 0)
Pooling protocol	Alternative method positive (A+)	Positive agreement (A+/R+) PA = 81	Positive deviation (R-/A+) PA = 10
	Alternative method negative (A-)	Negative deviation (A-/R+) ND = 10 (PPND= 0)	Negative agreement (A-/R-) ND = 3 (PPNA = 0)

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Safer, greener control through intelligent pest management

Pest control is not the most popular topic, but in hospitality and food service industries it is always an important, if hidden issue. Pests do exist and they are very good at finding their way into humans' living and working spaces.

by **John Austin, National Sales Manager, Pest Control Team, Mitie.**
mitie.com

Rodents are particularly effective invaders, carrying diseases, causing damage to buildings and spoiling foodstuffs. Using rodenticides is one of the more conventional methods of controlling their numbers. However, there are potential risks to people and the environment from the use of rodenticide products.

Following changes in European Regulations, the UK's Health and Safety Executive (HSE) realised the need to protect people and non-target wildlife from unnecessary exposure to toxins.

The UK Government and the HSE launched the Campaign for Responsible Rodenticide Use (of which Mitie is a fully committed participant). This supports a stewardship scheme founded on principles to promote responsible rodenticide use, and good practice, by all professional pest controllers.

To the general public and many commercial clients, this legal change has probably slipped by under the radar. For those in the pest control business, it signalled the potential to change the face of pest control practices whilst managing an ever growing rodent problem.

Over the last three years, Mitie has recorded a 35% increase in rat activity. With this in mind, an intelligent and co-ordinated approach to rodent control without the over-use of rodenticides is becoming more important.

Don't spread it around

Fortunately, there is a user-friendly solution at hand. By using a comprehensive range of techniques bespoke to each premises, and employing a targeted and monitored

strategy, it is possible to deliver 'intelligent pest management'.

Conventional pest control methods tend to adopt the blanket approach of laying down pesticides all over a premises with hope of dispatching as many pests as possible. This is not the most efficient means of pest control, neither is it environmentally friendly and can pose safety issues for employees and clients.

Excessive application of pesticides or rodenticides certainly increases contamination threat to any consumable goods being stored, or organic produce being grown on site, which is a disastrous risk in a food service industry. No establishment wants to risk poisoning anyone.

Get smart

The most effective pest control strategy is one that monitors and pre-empts pest activity patterns so rodenticide use can be targeted – if required. Mitie employs IT based systems that improve methods of reporting and increase the percentage of effectiveness. We achieve this through our online portal, Pest Alert.

By using an online system, pest controllers and clients can monitor all pest management activities, and give recommendations that help reduce reliance on pesticides such as housekeeping, stacking, proofing and habitat management.

The system logs visits and actions supported by photographs; it also measures completion and compliance as evidence for auditors. Being online means that all relevant information is accessible via PC or mobile devices, giving total control over pest risk.

Paperless and auditable

Why drown in a sea of unnecessary paper when all the information you need to access, and records you need to keep, are available at the touch of a button? One of the best advantages of an IT-based pest management system is that it is paperless. Many clients will initially shy away from



the paperless route, however being paperless does not mean that your quality systems cease to be auditable. Abandon the days of keeping paper records to demonstrate due diligence.

If they are not regularly updated, a business could be exposed to legal proceedings or worse, experience an audit failure.

Online systems change behaviours, as the focus shifts from reactive pest control activity to proactive prevention, leading to better risk management and reduction of pest activity.

Service in record time with unrivalled efficiency

Online reporting facilitates better engagement, accountability and responsive action on a pest control programme. A well informed decision is usually the correct one and there is no room for ambiguity when every pest incident and action is logged in real time for all interested parties to see.

By combining technology and encouraging proactive client input you can achieve cleaner, safer pest control. It does not have to be a burden to maintain your records, and the auditors have a secure, paperless trail to follow your progress.

So, even though we do not want to talk about the unpleasant topic of pests in the food sector, we should.

Now there is technology in place to manage their presence with ease, safety and efficiency. It gives us a head start, without the headache. ■

LIMS tracks entire dairy QC process

The Matrix Gemini Laboratory Information Management System (LIMS) from Autoscribe Informatics allows QC laboratories in the dairy industry to accurately record, evaluate and trace test results throughout the production process. It can be used to automate the logging of samples, expedite the QC tasks, collate and merge all the data and extract management information quickly.

Samples for analysis can be taken at any stage in the production process from ad hoc sampling at the farmyard, through transportation of the milk to shelf-life tests for the final product and at almost any point in between. Managing data for a wide range of analytical techniques and tracking of results is of paramount importance.

Crucially, Matrix Gemini can be configured to meet the needs of any dairy process without the need for any programming or coding skills, thanks to its graphically based configuration tools.

"The flexibility offered by Matrix Gemini's configuration tools means that workflows, user screens, icons, labels etc can easily be set up to match the required laboratory process flow," Autoscribe Informatics Managing Director, John Boothe, told International Food Hygiene. "Using a LIMS to control, manage, organise, document,

analyse and report information leads to improved efficiency and functionality of data storage and manipulation."

"For example, large customers like supermarkets, may demand to see a 'Certificate of Conformance' on a batch by batch basis, and Matrix Gemini allows these to be generated automatically and emailed to the customer. At a different level, the system can expedite the release of milk from quarantine into the production process by automatically issuing pass/fail results based on tests at that stage of the process."

Built-in quality control features simplify QC control sample testing, while charting functions make trend analysis and reporting easy.

All activities relating to samples, tests, resources, projects, suppliers and customers are flagged with a revision number, time, date and user ID so that the system provides comprehensive audit trails and provides version control of all reference data such as test definitions. Matrix Gemini allows management reports to be quickly compiled. One example would be the average bacterial counts of the product over time for different batches, or variations over time. This ensures that quality can be monitored and, if necessary, actions taken to improve quality.

autoscribeinformatics.com

New test kit for rapid detection of soy

Romer Labs, a leading global supplier of diagnostic solutions, has improved their rapid on-site strip test for the detection of soy.

The new AgraStrip Soy can be applied to a variety of finished food products, as well as rinse water and environmental swab samples. It was developed to protect brands and consumers from accidental soy contaminations. It uses a new and improved monoclonal antibody which allows extremely low amounts of soy to be detected in a shorter period of time. The first incubation step is now reduced from 20 to only five minutes, leading to a total assay time of 11 minutes.

romerlabs.com

Furthermore, the new AgraStrip Extraction Reagent for Processed Soy improves the recovery of processed soy proteins, which are often difficult to detect, and thereby helps to avoid false negative results.

Soy represents an important food allergen all over the world.

It is among the top allergens in Europe, which require labelling according to EU Regulation No 1169/2011 and is on the list of major food allergens in the USA according to the food allergen labelling act (FALCPA).

Labelling of soy is furthermore mandatory in Canada, Japan and Australia/New Zealand, all of them following Codex Alimentarius recommendations.

Rapid and flexible solution for beverage spoilage yeasts

Pall has expanded its GeneDisc product range for process monitoring with the introduction of a new solution for spoilage yeasts.

This flexible solution is designed to answer the specific needs of the beverage industries to detect and identify spoilage yeast in a timely fashion.

This new solution offers two testing options, with different levels of information, to fit all types of sample and testing strategies. The first one is a yeast screening test. The second is a yeast identification test for the 12 major beverage spoilage yeast species and genera, including *Saccharomyces cerevisiae* var. *diastaticus* and *Brettanomyces bruxellensis*.

For yeast slurry testing and colony

identification, results are available in only two hours. To determine the presence of down to one micro-organism in the sample, the test is performed in as fast as 30 hours.

"Spoilage risk is greatly reduced as users obtain results faster and earlier in their process. As an example, with only two hours from sample to result, breweries can prevent pitching contaminated yeast," Sirine Assaf, Director of Pall GeneDisc Technologies, told International Food Hygiene.

"In addition, beverage producers including breweries, wineries and wine bottlers can now consider next day batch release controls. Main benefits include total peace of mind, avoiding costly recalls and reducing storage costs".

This informative and rapid solution accelerates root cause analysis when contamination is detected, consequently reducing its financial impact.

This easy-to-use solution can be implemented at beverage producers from small to large across different industries and complements the existing GeneDisc solutions for the detection of beer and TAB spoilage organisms.

pall.com



Food authenticity testing recognition

Campden BRI's overall expertise in analysis and testing has been recognised following its inclusion in the general proficiency section of the Department for Environment, Food and Rural Affairs UK Centres of Excellence in food authenticity testing.

Campden BRI is active in many areas of food authenticity testing, including meat, fish and seafood speciation, olive oil analysis, and spice adulteration.

Methods used include real time polymerase chain reaction (PCR) assays, DNA sequencing, immunoassays, inductively coupled plasma mass spectrometry (ICP-MS), microscopy, and a wide variety of liquid and gas chromatographic techniques.

"Our analytical testing services are

supported by a range of scientific research projects, funded by our members," Steve Garrett, food authenticity specialist, told International Food Hygiene.

"Included in these is a project looking at development of 'next generation' analytical technologies to protect the food industry from fraud.

"Amongst the outputs from this project have been evaluation of commercial isothermal DNA amplification assays for meat species and fish (red snapper), and a commercial immunoassay dipstick test kit to detect the presence of cow's milk in products such as ewe and goat's milk cheese.

We have also developed a fast and sensitive real-time PCR nuclear DNA assay for the detection of horse DNA in meat products, and looked at volatile profiling of olive oil for rapid authentication."

campdenbri.co.uk

Certification for pseudomonas testing in drinking water

IDEXX have announced that the Pseudalert and Quanti-Tray test, used for the 24 hour confirmed enumeration of *Pseudomonas aeruginosa* (*P. aeruginosa*) in drinking water, including bottled water, has been granted the NF Validation certification, under the reference IDX 33/05-03/16.

The AFNOR certification follows a preliminary study, carried out by an expert laboratory and a second pan European study which included 14 laboratories across five countries.

The data from both studies was then subjected to rigorous scrutiny by an expert committee made up of stakeholders from regulatory authorities, users from public, private and industrial laboratories, and manufacturers.

The IDEXX Pseudalert test is a rapid method for the detection of *P. aeruginosa* in drinking water. It was launched in 2012 by IDEXX to complement a growing portfolio of water microbiology testing solutions. Pseudalert has been adopted by utilities and the bottled water industry as a fast, effective quality control test.

A confirmed and quantified result

can be achieved in 24 hours with Pseudalert, less than half the time taken by standard methods, allowing results to be determined faster and remedial actions to be taken sooner.

The IDEXX Pseudalert test is based on a bacterial enzyme detection technology that signals the presence of *P. aeruginosa* through the hydrolysis of a substrate in the Pseudalert reagent.

P. aeruginosa cells rapidly grow and reproduce using the rich supply of amino acids, vitamins and other nutrients present in the Pseudalert reagent.

Actively growing strains of *P. aeruginosa* have an enzyme that metabolises the substrate in the reagent to produce blue fluorescence under ultraviolet light.

Where quantification of a sample is required, IDEXX has developed a simple device known as a Quanti-Tray, which consists of 51 individually sealable cells. The Quanti-Tray can also be incubated for 24 hours, after which the fluorescent cells can be counted and quantified by reference to the IDEXX MPN table.

idexx.com

New vibratory sieve shakers

Retsch's new generation of vibratory sieve shakers, AS 200 and AS 300, ensure accurate, reliable and user-friendly grain size analysis. They are characterised by optimised functionalities and a fresh new design.

- The entry-level model AS 200 basic now features digital control just like the other models of the AS 200 series. Parameters like performance and time are shown in the display.

- The AS 200 digit cA (controlled amplitude) enhances the previous 'digit' model. This sieve shaker now operates with controlled amplitude which is indicated in the display, just like the sieving time.

- The high-end model AS 200 control has been further optimised and can now be equipped with up to 10 sieves. New features include the storage of up to 99 sieving programs as well as USB connection for use of EasySieve evaluation software. The

AS 300 control for sieves with a 300 mm diameter is now also available in the new design and with additional features.

The new sieve shakers are easily and conveniently operated via the clearly structured keypad. Thanks to optimised control and vibration decoupling, the machines run very quietly.

These are the products of choice when it comes to reliable and standard-compliant particle size analysis.

retsch.com

Quality control of culture media

Merck has received accreditation for the quality control of dehydrated culture media tested at its microbiology quality control laboratory in Darmstadt, Germany.

The ISO/IEC-17025:2005 is the

Water activity measurement accessible to everyone

Labcell's latest Pawkit water activity meter is pocket-sized, easy to use and very economically priced. It is a combination that makes the measurement of water activity accessible to anyone in the food industry, whether the requirement is for quality-assurance inspections of ingredients, in-process checks, or the development of new products and packaging.



Currently, there is a particularly high level of interest among small and medium-sized delicatessens and producers of charcuterie, jerky, biltong, and other cured, smoked and air-dried meat and fish.

Water activity (sometimes referred to as equivalent relative humidity or ERH) is an aspect of food quality assurance that has rapidly gained importance as food producers, processors and regulatory authorities appreciate the impact that water activity has on taste, odour, texture, food safety and shelf life. However, not all interested parties have a laboratory where a benchtop instrument can be installed, or the budget to pur-

chase one, so the AquaLab Pawkit portable water activity meter is a compact, user-friendly and cost-effective alternative.

Furthermore, the battery-powered device can be carried anywhere within the production plant or wider supply chain for quickly taking on-the-spot measurements. Water activity can therefore be measured in all locations, from the field to the factory.

To take a measurement the user simply places the Pawkit over a sample dish containing solid, liquid, paste or powdered material, and presses the start button. Readings are obtained in five minutes or less, with the large, clear LCD display showing both the water activity and the temperature at which the measurement was taken. Lifting the Pawkit away afterwards removes the sample. With its smooth stainless steel and polymer casing, the Pawkit is also very easy to keep clean.

Yet despite its compact dimensions (101mm long by 88mm wide), the Pawkit's capacitance sensor provides the instrument with a very wide operating range of 0.00 to 1.00 aw and an accuracy of ± 0.02 aw, which is adequate for most applications. The two lithium button cells typically have a life of three years.

Each Pawkit is supplied complete with a robust carry case, sample cups/lids, verification salts, operating instructions and a laboratory certificate.

labcell.com

international standard in testing and calibration for laboratory quality systems. The accreditation means that global customers in the food, beverage and municipal water industries can be assured that Merck's facility adheres to the most stringent international standards for quality in preparation and performance.

The accreditation provides a benchmark for laboratory competence for specific types of testing, measurement and calibration, informing customers that test data supplied by the laboratory are accurate and reliable.

Having an ISO/IEC-17025:2005 accreditation from Germany's

national accreditation body, DAkkS, ensures the full compliance of the lab's GranuCult culture media to the new mandatory standard ISO 11133:2014 concerning the preparation, production, storage and performance testing of culture media.

ISO/IEC-17025:2005-certified culture media help laboratory professionals remain consistently compliant and accurate in their microbial testing of food and water samples.

Laboratories are evaluated periodically to ensure continued compliance with requirements and maintenance of operations standards.

merckgroup.com



Enumerating surface contamination – an impossible challenge?

Although the concept of environmental monitoring by testing surface swabs is well recognised, the problems and challenges are frequently overlooked or conveniently forgotten for the benefit of simplicity, convenience and convention. Despite advances in swab materials and wetting agents, little has changed since 1917 when the principle of 'swab and rinse' was introduced.

In their review, Moore and Griffiths (2007) state that swabbing efficiencies are often poor with recovery rates ranging from 1% to 25%. The inability to control the reproducibility and repeatability of swabbing techniques can result in extreme variability of results obtained. They concluded that "traditional microbiological methods should neither be presumed to be the gold standard nor the optimum means to assess the efficiency of a company's sanitation program and swabs should not be relied upon to give an accurate indication as to the level of micro-organisms present".

What are the issues? There is no universally accepted swabbing protocol. Several researchers suggest that sampling methods and components should be chosen based on the type and species of bacteria rather than by the most bacteria recovered. There are many factors affecting swab sampling and the subsequent results obtained. Ideally the sample should be tested immediately after collection to prevent deterioration or abuse of the sample but this is usually impractical.

Delays between sample collection and testing are often inevitable. Protracted delays during transport need to be mitigated by controlled storage and transport. Removing bacteria from surfaces is considered a primary objective but their survival on the swab material and/or in the wetting agent, and their subsequent release into a diluent are equally important. Similarly the surface area covered and pressure applied between the swab bud and surface will influence results. Thereafter the resuspended sample is subject to the inherent variability of the detection method itself.

There are no agreed standards for clean surfaces. There are common proposals from several different industries that quantitative aerobic colony counts should be <2.5 per cm², or <250 bacteria in a 10 x 10cm square. This is equivalent to a detection limit of 1 part in 100 million and is comparable to trying to collect, detect and quantify a single ant on a tennis court. This contamination level is also the limit of quantitation of the aerobic plate count when using the standard swab and rinse procedure with 10ml diluent.

Counting <25 colonies on a plate gives imprecise and variable results that should be considered semi-quantitative or indicative. Grouping contamination levels as bands (or in bins) is a statistically more relevant and pragmatic approach which yields a better representation and correlation of low numbers of micro-organisms on surfaces. Under these circumstances, the concept of Pass/Caution/Fail is more realistic, meaningful and easy to understand where Pass is <250 and Fail is >1000.

The ideal solution would be to have a swab detection system that collected a representative sample to allow maximum recovery from surface without losses due to resuspension, dilution or time to initiate the test, and deliver results in the shortest possible time for trend analysis. This can be achieved if the sample collection device is also the detection device where 100% of the sample can be tested immediately.

MicroSnap Surface Express is able to deliver these attributes but like all modern rapid methods relying on metabolic activity, the challenge is how to compare these different approaches to the unique and variable colony count method, particularly at very low contamination levels.

As Einstein said "we cannot solve our problems with the same thinking we used when we created them".

We need to acknowledge the reality of the problem and adopt a different perspective.

Polymorphic fingerprinting

This Spanish paper (*Food Control* 60 370-377) highlights a new method that can be used to differentiate between real and fake food products in the battle against food fraud.

A new analytical method based on ultrahigh resolution mass spectrometry and crystallographic techniques applied to the lipid fraction in combination with chemometrics are described.

The results of triacylglycerol profile determined by ultrahigh resolution mass spectrometry and the fingerprint provided by the thermograms obtained by differential scanning calorimetry would appear to offer a means of differentiating Iberian dry cured ham categories and could well, in combination with chemometrics, be useful in confirming the authenticity of foods containing moderate to high levels of lipids.

PCR detection of pork

In this Croatian study (*Poljoprivreda* 21 (Supp.) 199-202) four commercially available DNA extraction kits as well as a standard phenol/chloroform isolation technique were evaluated for their concentration, purity and suitability for the amplification of porcine DNA in dry/fermented sausages.

All the investigated techniques were proven suitable for the detection of porcine DNA in dry/fermented sausages.

Packaging gas and lactic acid bacteria

This Finnish study (*J. of Appl. Micro.* 119 1310-1316) looked at the effect of different CO₂-rich packaging atmospheres on the composition of the lactic acid bacterial communities proliferating on raw pork.

Raw pork was inoculated with a mixture of 14 lactic acid bacteria and then packed in one of four gas atmospheres (100% CO₂, 80% N₂ + 20% CO₂, 80% N₂ + 20% CO₂ + 0.4% CO and 80% O₂ + 20% CO₂). These products were then monitored through 14 days of storage at +6°C.

It was shown that a high concentration of CO₂ favoured *Lactobacillus* sp., high concentration of O₂ favoured *Leuconostoc* spp. and atmospheres of 80% N₂ + 20% CO₂ favoured *Lactococcus* spp.

New rapid method for *Campylobacter* spp. detection

This British paper (*J. of Appl. Microbiol.* 120 469-477) describes the development of a rapid test for the detection of thermotolerant *Campylobacter* in poultry faeces.

This method is based on immunomagnetic separation and loop mediated isothermal DNA amplification (IMS/LAMP). This LAMP method is specific, as demonstrated by using 10 *Campylobacter* strains and 13 non-*Campylobacter* bacterial species, and sensitive (95% probability of detecting 22 genome copies).

A competitive internal amplification control has been incorporated to give unambiguous determination of negative results.

Immunoseparation of *Campylobacter* allows direct LAMP detection from poultry boot swabs (sampling material is placed on the boots and then walked around the shed to sample the litter) in 90 minutes without enrichment or DNA purification (74% probability of detecting 100 cfu per ml of boot swab suspension).

The analysis of 17 samples from a commercial turkey farm showed a 100% correlation with traditional microbiological culture.

It was considered that a rapid test had been developed for the direct detection of thermotolerant *Campylobacter* from boot swabs.

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Novel DNA methods

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New developments in DNA methods means we can expect more user-friendly, smaller, quicker and cheaper detection devices to be the norm for authenticity and adulteration testing within the next five years. Currently, DNA approaches are used to determine animal species, breeds and genotype, as well as plant species and varieties. They involve DNA amplification by PCR, detection by gel-electrophoresis or by real-time PCR, with the latter technique offering the ability to quantify the amount of target DNA in a sample. Standard Sanger DNA sequencing is also used for species identification, but has limitations when applied to complex food ingredients containing a range of species. In the last few years, alternative DNA amplification and next generation sequencing approaches have been developed which offer potential benefits, not only for use by food analysts but also for on-site testing by food companies.

Isothermal amplification

Non PCR-based target amplification techniques, such as LAMP (Loop Mediated Isothermal Amplification) and RPA (Recombinase Polymerase Amplification) have recently been used in a number of applications. They use a different enzyme system which makes them fast, very sensitive and they do not require purified DNA so they can work on relatively crude preparations from samples and swabs. The total time from sampling to result generation can be less than 30 minutes.

Though they are still in their infancy, these types of assay offer the prospects for industry based screening of raw materials, if combined with simple detection systems. Also, as their endpoint is based on fluorescence detection, isothermal amplification assays can be used on standard real-time PCR instrumentation, which allows high throughput. Dedicated kits and instruments have been developed by a few companies.

Next Generation Sequencing (NGS)

There has been a rise in interest in non-targeted detection of species, using next generation DNA sequencing approaches. This is particularly relevant for highly processed meat, fish or herb products, as this approach enables screening for any species DNA that may be present. Standard NGS Instrumentation routinely found in genomics research laboratories are now being used by food analysts. However a new approach, based on nanopore sequencing, lends itself for use in even the most basic laboratories. It uses a technique in which single strands of DNA move rapidly through a synthetic nanopore on a chip and generates sequence data in real-time. The sequencing is performed on a sensor instrument that is smaller than a mobile phone, connected to a laptop which uses cloud-based software to enable DNA sequence determination and species identification. Use of simple DNA extraction and preparation techniques could enable delivery of a result within a few hours.

At Campden BRI, we will continue to assess the use of these technologies via our ongoing research project looking at next generation techniques for microbiological and chemical food safety.

www.campdenbri.co.uk



Drug resistant salmonella from eggs

This Iranian study (*J. of Pure and Appl. Microbiol., Spec. Ed. 2, 9 175-179*) looked at drug resistance in Salmonella spp. isolated from native chickens in southern Iran.

Antibiotic	Resistant salmonella isolates (%)
Ampicillin	85.9
Tetracycline	14.5
Kanamycin	42.9

The main serotype isolated was Salmonella enteritidis. Antibiotic resistance is summarised in the table above.

Internal quality of eggs

Results from this Brazilian work (*Acta Sci. – An. Scis. 38 87-90*) showed that the internal quality of table eggs was worse when there was no refrigeration and that packing eggs also improved internal quality but not as much as cooling did.

Salmonella in South African products

This study (*S. Afr. J. of Sci. 111 70-76*) looked at the levels of salmonella in raw and ready to eat poultry meat products. The survey included 120 raw products, 40 polonies and 20 smoked viennas.

Some 12.5% of raw products yielded salmonella, 46.4% of which were Salmonella typhimurium, 30.9% S. enteritidis and 22.9% S. newport.

S. typhimurium was the dominant serotype on chicken carcasses, whereas the other two serotypes were more prevalent in chicken.

Electron beam irradiation

This Chinese study (*J. of NW A & F Univ., Spec. Sci. Ed. 44 211-216*) looked at the effect of electron beam irradiation on the quality of egg yolk as well as micro-organisms in egg yolk.

Irradiation doses ranging from zero to 8gKy were used and then the product was held for 30 days. The effect of radiation dose on egg yolk quality in terms of emulsifying capacity, fat oxidation and colour as well as microbial changes were assessed.

It was concluded that a dose of no more than 4.0gKy of electron beam irradiation was optimal since its effects on physical and chemical properties of the yolk were minimal and was an effective control of micro-organisms.

Chicken microbiology in Turkey

In this Turkish study (*Akad. Gidya 13 304-316*) 25 chicken breasts and 25 chicken thighs were screened.

The results are shown in the table below.

	Microbiological count (cfu per g)	
	Breast	Thigh
Total mesophilic aerobic bacteria	8.50x10 ⁴ -9.70x10 ⁸	2.70x10 ³ -4.84x10 ⁸
Total psychotrophic bacteria	1.70x10 ⁴ -9.35x10 ⁸	1.74x10 ³ -2.06x10 ⁸
Yeasts and moulds	2.50x10 ³ -3.20x10 ⁴	2.50x10 ³ -1.35x10 ⁵
Total coliforms	4.30x10 ³ -2.30x10 ⁶	2.30x10 ³ -9.30x10 ⁵
Faecal coliforms	0.36x10 ³ -9.30x10 ³	2.30x10 ² -2.30x10 ⁴
Staphylococcus aureus	<10 ² -5.52x10 ⁵	<10 ² -2.02x10 ⁵
Bacillus cereus	1.10x10 ³ -1.10x10 ⁵	2.20x10 ³ -7.40x10 ⁴
Clostridium perfringens	1.90x10 ³ -4.90x10 ³	2.00x10 ³ -5.70x10 ³
Positive samples (%)		
Listeria monocytogenes	12	16
Salmonella spp.	44	76

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Microbrewery in Taiwan

Now coupled with level sensors, the PCM Dosymix supplies a simplified installation with two components in one: it replaces the buffer tank and in line mixer, a particularly interesting solution for improving 'just on time' dosing while facilitating food security. The Dosymix inline dynamic mixer already enjoys wide acceptance and is often used by the dairy products sector to guarantee homogeneous products. It drastically reduces the dimensions of the equipment required for just on time dosing/filling.

pcm.eu

Flexcrete's hygienic coatings are used for the internal anti-microbial protection of food and beverage plants all around the world and one of the company's latest projects has seen Biodex Sheen in use at Long Sun Brewery, Taiwan's first licensed microbrewery in New Taipei City.

During a refurbishment of the microbrewery, Biodex Sheen, a tough, waterborne, anti-bacterial and anti-microbial hygiene coating, was applied to the ceiling areas due to its proven ability to combat the growth of mould, bacteria and yeasts. It prevents the growth of micro-organisms through an innovative combination of encapsulated in-film protectant and silver ions.

It is also able to withstand extreme conditions such as high humidity and thermal shock caused by sudden changes in temperature. Biodex Sheen was supplied by Flexcrete's distributor in Taiwan, Paralel Industrial Co Ltd.

Long Sun Brewing has plans to expand into Northeast and Southeast Asia, and globally within the next 5-10 years, so it was important that the microbrewery met the very highest of hygiene standards.

Anti-microbial protection was required as there are potentially many species of micro-organisms present in the brewing environment, or in raw materials used in brewing,

that can otherwise contaminate beer.

The waterborne nature of Biodex Sheen was absolutely critical for this project, as the coating could be rapidly and safely applied by roller and brush without any risk of contamination as it is non-toxic, non-leaching, non-tainting and ultra-low odour. The use of solvent-free materials was a vital consideration, as odour contamination of products can potentially have serious, and costly, implications in breweries.



Two coats of Biodex Sheen can be applied in a single working day, so disruption is kept to an absolute minimum. Once in service, Biodex Sheen is highly resilient and is able to withstand extreme temperature changes from -50°C to +80°C without cracking or flaking. The advanced styrene acrylic micropolymer resin binder crosslinks to afford excellent adhesion which remains unaffected even when substrate moisture escapes to the atmosphere through the membrane.

flexcrete.com

Digital oven thermometer

Electronic Temperature Instruments' new Digital Oven Thermometer (DOT) has been designed to do one thing really well. Simply set your target temperature with the 'Up' or 'Down' buttons, insert the probe into your food, and the DOT beeps (70 dB) when the food gets to the required temperature. It is as easy as that. Press any button and the beeping stops but the display still flashes until your temperature drops below the required set temperature.



With a resolution of 1°C/°F, the DOT measures temperature over the range of -50 to 300°C. Designed for commercial food service applications, the DOT is no lightweight and outperforms consumer thermometers for intuitive usability and survivability in the demanding kitchen environment.

With just two buttons - 'Up' and 'Down', there is no complicated programming or flashing food icons.

Designed for commercial use, the DOT is a professional kitchen tool. The moulded-in, splash-proof seals and commercial grade plastic body will survive even in the busiest of kitchens. Each unit includes a tilt-out stand for counter use and a strong magnet for attaching to metal surfaces.

The DOT is supplied with a food penetration probe.

etiltd.com

Ishida strengthen East Africa presence

Ishida Europe has strengthened its sales and service support in East Africa with the appointment of Allwin Packaging International as its agent for the region.

Based in Nairobi, Kenya, Allwin Packaging International is the largest supplier of packaging machines in East and Central Africa, with comprehensive after-sales service and support for all installed equipment.

The partnership enables Allwin to offer Ishida's extensive range of market-leading multihead weighers and checkweighers for a wide variety of food markets, and the company will also be able to supply Ishida's specialist machines for specific applications where there is a customer requirement.

ishidaeurope.com

Food science apprentices



A Food Science and Technology Steering Group, led by the National Skills Academy for Food & Drink (NSAFD) has unveiled the Standard for the UK's first degree level apprenticeship in Food Science and Technology.

In a move to address the UK's current shortage of food scientists, the Food Science and Technology Steering Group, Chaired by Janette Graham from 2 Sisters Food Group, and comprising employers from Nestlé UK & Ireland, Cargill Meats, Dunbia, Branston, Produce World, Tulip, Oscar Mayer, Sainsbury's and Princes, has spent nine months working with NSAFD to develop a Level 6 Food Industry Technical Professional Degree Apprenticeship Standard.

The food industry struggles to attract good food science graduates, however, these roles are critical in ensuring the industry can address issues such as reformation, sugar reduction and innovation.

Research suggests that 25% of food scientist and food technologist vacancies remain unfilled due to a lack of available talent.

Justine Fosh, Chief Executive of NSAFD, believes that without intervention, this situation will become critical: "Currently the only recognised way to become a graduate food scientist is to attend full-time university. With the dwindling numbers of students studying the subject, the pipeline will not be sufficient to meet industry needs.

The development of this Standard is a direct response from the industry for the industry."

foodanddrink.nsacademy.co.uk



Hygienic belt conveyors



The enhanced hygiene and durability performance features of Meyer conveying equipment are ideal for food industry requirements. From vibratory conveyors and feeders to hygienic belt conveyors, Meyer equipment is designed, engineered and manufactured to address the growing needs of various food industry consumer segments.

Meyer conveying products address issues related to allergens and gluten where cross-contamination can be problematic. Easy to clean equipment such as their Vibra-Flex II Vibratory Conveyors, Magna Weigh Feeder and Sanitary Belt Conveyors, make it less likely that cross-contamination will occur.

The Vibra-Flex II is a unique base



frame vibrating conveyor line that incorporates a simple, low maintenance design to provide a high level of reliability, hygiene and operating efficiency.

These conveyors can be designed for multi-purpose applications such as screening, dewatering, laning, grading, feeding and spreading processes while conveying.

The Magna Weigh Feeder is a continuous in-line weighing vibratory feeder designed to feed and/or monitor products by weight. It combines the simplicity and cleanliness of a vibratory feeder with the weighing capabilities of a weigh belt.

Sanitary Belt Conveyors from Meyer combine proven designs with durable, highly hygiene construction that results in a dramatic reduction in clean up time compared to modular belting. Available in a wide range of sizes and configurations including pulley and belting style, one piece or modular frame construction, and removable belting from the side which all accommodate the inspection, storing or transporting of product. The all stainless steel construction makes this belt series ideal for use in heavy wash-down environments.

meyer-industries.com



Eriez ProGrade Tubes, Grates and Liquid Line Traps are now available with the new and improved Xtreme RE7 Rare Earth Tube Circuit, which proved to be 13-40% stronger than other magnets on the market today in head-to-head pull tests. Items offered through the ProGrade Program are economically-priced, in stock and ready for quick shipment. Eriez ProGrade Xtreme Rare Earth magnetic separators remove weakly magnetic fine ferrous contamination to ensure ultimate product purity and equipment protection. Eriez continues to offer ProGrade products in lower powered models for customers with less stringent separation requirements.

eriez.com

Fast acting disinfectant



Holchem has launched Optimum QFD 60 ready to use disinfectant – a blend of non-ionic and non-QAC biocides (QAC free) which provide fast acting surface disinfection that meets the requirements of both EN1276 and EN13697 in 60 seconds. Its contents ensure that any site where food is produced do not exceed the statutory residue limits associated with QAC based disinfectants.

For surface disinfection QFD 60 should be applied by a light spray and allowed to stand for at least 60 seconds. Before re-using for direct food contact, it is advisable that the surface is dry and free of excess liquid. When used for light cleaning, lightly soiled surfaces should be sprayed with QFD 60 and wiped over with a suitable cloth.

Optimum QFD 60 meets stringent demands in that it is fast acting, ready to use and delivers the best results. Time is of the essence in a fast paced environment where the highest levels of hygiene and disinfection are required. Using the method of EN13697, Holchem's new QFD 60 meets the requirements of this test and provides surface disinfection (99.99% reduction) in an even faster time of 30 seconds.

holchem.co.uk

HACCP Compliance Verification Service



NSF International, a global organisation with more than 70 years of expertise in food safety and quality, has launched HCV EU (HACCP Compliance Verification), a new HACCP compliance verification service for the European Union commercial food equipment market.

Prior to the launch, the European market had no compliance program to cover the hygienic quality of commercial food equipment.

NSF International developed this new program based on relevant European guidelines and legislation.

Compliance to HCV EU enables manufacturers to demonstrate their commitment to food safety and the highest standards of quality.

It also offers specifiers, including US based restaurant chains and retailers, the ability to define basic food safety principles and translate them into equipment requirements.

Specifiers can then check for these requirements that cover hygienic quality when buying and selecting commercial food equipment. This helps to minimise risks such as food contamination, food poisoning and an unhygienic environment, thus protecting their brands.

nsf.org

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www.foodsureurope.com

International Symposium Salmonella and Salmonellosis (IS3)
6-8th June
Saint-Malo, France
www.i3s2016.com

9th World Mycotoxin Forum
6-9th June
Winnipeg, Canada
www.wmfmeetsiupac.org

Fooma
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Tokyo, Japan
www.foomajapan.jp

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www.am-fe.ift.org

IAFP USA
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St. Louis, Minnesota, USA
www.foodprotection.org/annualmeeting

Food ingredients Asia
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Jakarta, Indonesia
www.figlobal.com

11th Global Summit and Expo on Food and Beverages
22-24th September
Las Vegas, USA
www.foodglobalsummit.com/america

PPMA Total 2016
27-29th September
Birmingham, UK
www.ppmatotalshow.co.uk

SIAL
16-20th October
Paris, France
www.sialparis.com

Unique protective cream



Deb, a global leader in occupational skin care products, and Ansell, a global leader in protection solutions, have launched Triple Active Gel – the world's first hand-health, under glove gel for occupational glove-wearers.

Half of all industry workers wear occupational gloves on a regular basis, so the need for comfort protection is high. Triple Active Gel combines a physical barrier protection with patented Deb Active Defense Molecules (DADM) to provide a gel which has the 'triple active' benefits of being an anti-allergen, anti-irritant and anti-perspirant.

Glove-wearers are facing increasing challenges related to hand health and comfort when wearing occupational gloves, which can affect overall productivity and efficiency. Whilst gloves provide physical protection for hands, the skin remains exposed to allergic and irritating substances from the working

environment. This can lead to skin irritation and excessive hand sweating, which not only creates discomfort for the wearer through skin softening, but sweating can also cause dampness in gloves, resulting in malodours which can be unpleasant for the wearer.

Deb's patented DADM Technology inside the Triple Active Gel encapsulates and absorbs allergens known to cause allergic skin reactions and allergic dermatitis. At the same time, DADM combines with a physical barrier protection to help block and neutralise acidic and alkaline substances that can cause skin irritation and lead to irritant dermatitis.

Independent scientific tests have shown that Triple Active Gel reduces the rate of water loss from the skin by 63% and skin redness by 31%; both key indicators leading to skin irritation. The revolutionary hand care solution can also reduce sweating in occupational glove-wearers by 50%.

debgroup.com



To ensure the purity of its product, Al Rawabi Dairy in Dubai, the UAE's largest, is using PureLine UV disinfection technology from Hanovia to disinfect water used in the milk production process. The UV system ensures the process is free from harmful bacteria such as E. coli and salmonella. According to Mr Ashraf, Al Rawabi's site engineer, two of the major benefits of the Hanovia UV system are the low operational and maintenance costs compared to alternative disinfection systems, and the fact that UV disinfection is a completely clean technology which does not produce any disinfection by-products or aftertaste, unlike chlorine disinfection. As well as distributing milk to over 9,000 outlets in the UAE, Al Rawabi also exports its products to Oman and Qatar.

hanovia.com

Steam pasteuriser innovations



FCD's Steristep is a saturated steam pasteuriser (working at atmospheric pressure). The continuous system can handle small batches of 5kg up to throughputs of 3,500kg per hour. It uses heated plates, sides and covers to raise product temperature, which can be regulated at different temperatures on different zones.

The stairway design with saturated steam (100-120°C, 212°-248°F) injected at the bottom of each step increases heat conductivity. Steam can be injected in chosen areas as well. Steristep has achieved a 7 log-reduction on Enterobacteriaceae faecium.

The vibration (made possible by unbalanced motors and suspensions) allows delicate products of all shapes and sizes from 200 microns up to 20cm to be treated, such as nuts, herbs, spices, seeds, seaweed, flours (whole or ground).

The Steristep process includes a cooler designed on the same principle featuring stairs and a vibrating chassis. It incorporates a double envelope filled with chilled water and the injection of cold, filtered air

from the covers to cool and dry materials after decontamination.

Cleaning and changeover time for an industrial Steristep line is around 30 minutes (two operators) with no dismantling at all.

Other innovations include the launch of the Steristep continuous pasteuriser and the development of PMH process, which guarantees total plate counts inferior to 10 CFUs.

fcdsystem.fr



Advanced weighing technology



The combination of Ishida's advanced weighing technology and project management skills have played a significant part in the recent growth of specialist UK salad producer Zenith Nurseries.

Four Ishida weighers are handling around 10 baby leaf products, including rocket, watercress and spinach, packed into both punnets (from 75-150g) and bags (from 75-500g), with weighing accuracy to within 1% of target weight across the different pack sizes.

Speeds vary according to what is being packed but are well within the company's requirements.

As part of the installation of the fourth weighing and packing line, Ishida has project managed the complete re-design of Zenith's pack house to accommodate the new line and make the entire operation more efficient.

This was a major undertaking with the Ishida project team emptying the pack house and re-installing the three existing lines, together with new steelwork and conveyors, alongside the new line. Disruption was kept to a minimum.

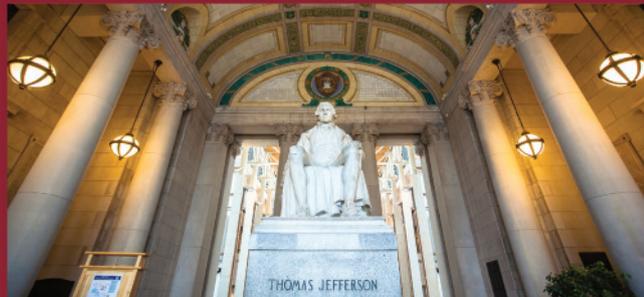
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