

# International Food Hygiene

Volume 27 Number 1 (2016)

Improving the global safety and quality of food and drink

## MYCOTOXINS

Staying in control despite unpredictable patterns

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International Food Hygiene (ISSN 0961 2831) is published six times a year (January, March, May, July, September and November) by Positive Action Publications Ltd and distributed in the USA by Mail Right Int., 1637 Stelton Road, Piscataway, NJ 08854. Periodical Postage Paid at Piscataway, NJ and additional mailing offices. Postmaster: Send address changes to International Food Hygiene, Positive Action Publications, c/o Mail Right Int., 1637 Stelton Road, Ste B4, Piscataway, NJ 08854.

# foodforthought

In a world in which anything and everything needs to be audited, the more one discusses external audits, auditing and auditors the more one becomes concerned about the feedback one gets. If we consider this, early alarm bells should now be ringing.

Firstly, we need to reflect on what the purpose of an audit is. Surely, it is required so that the world at large can be satisfied that you are complying with the requirements of the scheme to which you belong and are being audited for.

It is not to take your company to a higher standard than that which is required; it is not to convert a quality manual to a document that is above a reasonable man's comprehension; and it is not a personal point scoring exercise for the auditors.

Schemes lose credibility when different auditors undertake consecutive audits and the second one wants the first one's recommendations cancelling so that the status quo that existed before the first auditor's input is retained.

What does this tell us about the scheme and its auditors?

Why do some auditors require a second visit to clear anomalies, whereas others feel they can be 'desk cleared'?

The suspicious mind might think there are budgets in the background that have to be met.

In 2016 should concepts that we routinely apply in our businesses not also apply to the auditing trade? Words like accountability and transparency immediately come to mind.

If society is going to place such a heavy emphasis on audits, does it also have the responsibility to police the schemes and their auditors?

If society wants to elevate the standing of audits and the status of auditors, should it not also provide the means for bringing them to task when needed?

The Royal College of Auditors may be going a bit too far, but society, through government, will have to act if things are getting out of hand and schemes, through the actions of their auditors, are having their credibility eroded.

After all, it is in everyone's best interests to have high quality assurance schemes. ■

## Cover Picture:

The mycotoxin threat  
(Photo courtesy of Romer Labs)

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# worldfocus

An executive summary of key international issues

## Additives

### Chinese get hooked on 'new' additive!

It has been reported that 35 restaurants in China have been using opium as a seasoning in their food. Needless to say, this is illegal. Five restaurants are being prosecuted over the findings and the remaining 30 are under investigation. Those involved include a popular chain of hot pot restaurants in Beijing. It is not yet known how the opium got into the food but previous cases in China have revealed chefs trying to get customers 'hooked' on their food by using the drug which is seriously addictive. Two years ago a failed drugs test led police to uncover a noodle seller who was deliberately lacing meals with opium and, in 2004, 215 restaurants in the country were closed down following similar charges.

## Fish

### A glowing report!

It has been reported that in the last three quarters of 2015, eight out of 150 samples of mackerel, pollock, cod, kelp and sea mustard collected from retail outlets in Korea were contaminated with radioactive caesium-137. It was found in samples of pollock and cod from Russia, along with samples of mackerel and kelp from South Korea. Levels of the isotope ranged from 0.37 to 1.09 Becquerels per kilogram in the samples. The acceptable standard for caesium-137 is 100 Becquerels per kilogram. The Russian cod samples had a 13% detection rate for the isotope – the highest in the study – followed closely by Russian pollock with 11.5%, Korean kelp with 7.7% and Korean mackerel with 3.3%.

## Scrumpping

### Still a safe activity in the USA?

Early results from research done in Massachusetts have highlighted that fruits and herbs foraged in the Boston area are safe to eat and contain relatively low levels of lead and arsenic. Results showed 0.5-1.2 micrograms per gram of lead in the apple samples. In the USA, the provisional total tolerable intake level of lead by small children is 6 micrograms per day. In addition, it was found that calcium levels in foraged apples and peaches were more than 2.5 times higher than the non-foraged versions of those fruits, and that levels of iron, potassium, magnesium, manganese and zinc were also higher in some of the samples. It looks as if scrumping is still a safe activity – and a good source of beneficial minerals!

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# Staying in control of mycotoxins despite unpredictable patterns

Mycotoxins are secondary metabolites produced by mould/fungi and are an emerging threat for animal and human health.

**Matthias Graeber,  
Bühler, London, UK.  
buhlergroup.com**

Aflatoxin, deoxynivalenol (DON), zearalenone (ZEA) and ergot alkaloids probably create the most commercial concern – commonly affecting corn, wheat, rye, barley, oats and spelt. The highly toxic aflatoxin is particularly problematic in corn as just a few highly contaminated kernels have the potential to make an entire lot unsafe for further use, even if the vast majority of grains are not affected.

## An emerging threat

Mycotoxins predominantly occur in concentrations that do not result in acute clinical symptoms of toxicosis, however, livestock may still show signs of elevated mycotoxin exposure, such as impaired growth, immunosuppression, and overall

reduced performance. Therefore, even when maximum permitted levels have not been set, it is advisable to follow guidance levels for feed (for instance, 8 parts per million (ppm) for DON in cereals and cereal products in the EU) from both an ethical and economical viewpoint.

Analysis shows that it is highly likely that affected product is contaminated with multiple mycotoxins, simultaneously. For example, a combination of the Fusarium toxins DON and ZEA, or a mix of aflatoxin B1 and fumonisins, may be present in corn lots.

This phenomenon is called co-occurrence and some combinations, such as aflatoxins B1 and fumonisins are particularly worrying because there is evidence of a synergistic interaction of the two substances, intensifying the adverse health effects.

Co-occurrence can be explained by two biological mechanisms. Firstly, some fungal species are able to produce different mycotoxins at the same time, such as Fusarium species producing deoxynivalenol and zearalenone.

Secondly, an affected product is likely to be infected by different species of fungi. Additionally, in compound feed, each component of the mixture can further exacerbate the problem by introducing

different mycotoxins. Researchers are now working to better understand the implications of co-occurrence on human and animal health.

## Early intervention critical

While good agricultural and post-harvest practice significantly reduces the risk of grain contamination, other factors, such as extreme weather, can cause plant stress, making the crop more susceptible to fungal infections.

Therefore, irrespective of the variability of the contamination profiles, it is business-critical that processors are able to rely on the performance of existing cleaning lines to be efficient and reduce toxin levels while removing only the minimum of good product. They also need to be confident that grain lots comply with commercial specifications and legal maximum levels of toxins.

Some regions have been hit severely in successive years, resulting in stockpiles of corn lots unfit for human or animal consumption. In response, processors have implemented advanced grain cleaning processes to prevent any initial contamination from spreading further by removing the small percentage of hazardous grains early in the value chain – not only in mills but also at grain elevator/reception facilities and warehouses.

## Natural variability

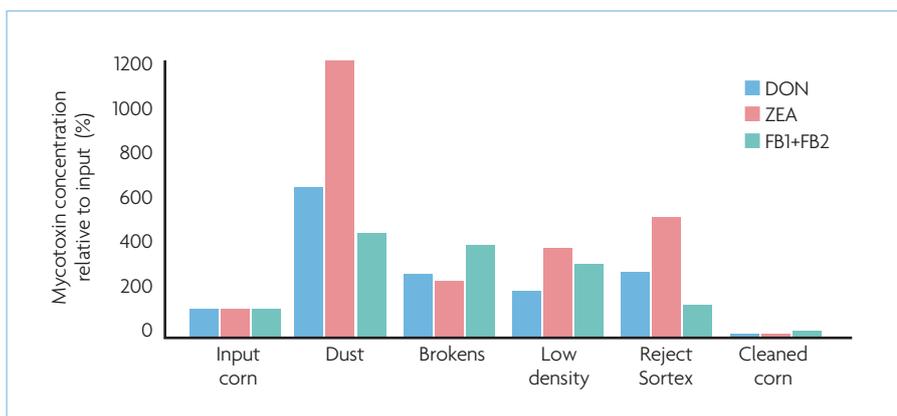
In 2012 Bühler worked with producers in Italy to successfully demonstrate that dedicated mycotoxin cleaning lines can effectively reduce aflatoxin B1 levels in contaminated corn lots – consistently below the European maximum level for feed of 20 parts per billion (ppb).

Two years later the mycotoxin problem hit the same region again; this time shifting from aflatoxins, produced by *Aspergillus* species, to DON, produced by *Fusarium* species.

Although less toxic than aflatoxins, producers were on alert not to exceed maximum permitted levels of DON in

*Continued on page 9*

**Fig. 1. Mycotoxin concentrations of input corn (base level of 100% for DON, ZEA, and FB1+FB2) and the relative concentrations in the corn fractions which were removed by the sequential processing steps and for the cleaned corn. The reduction performance is case specific and may vary for different types of contamination. The sampling was in accordance with the EU Commission Regulation No 401/2006. Mycotoxin analysis was carried out using HPLC.**



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Continued from page 7  
product intended for food and to ensure they complied with commercial specifications and guidance levels for use in animal feed.

Reliable measurement of a mycotoxin concentration at ppb and ppm requires a statistically representative sample of the product, sample preparation, for example by grinding and extraction, followed by chemical analysis using test kits or laboratory-based methods, such as high performance liquid chromatography (HPLC).

Clearly, this approach is simply not viable for a grain flow of many tons per hour. However, by identifying the key physical indicators of the presence of fungal

contamination, and removing kernels with these indicators by cleaning and optical sorting, it is possible to significantly reduce mycotoxin concentration.

### A valid approach?

But first, a central question to address is whether this approach remains valid even when multiple mycotoxins are present and the indicating properties change, due to varying contamination profiles.

Fig. 1 shows new findings from Bühler's latest research in association with the Institute of Sciences of Food Production ISPA, Bari, Italy, at an Italian grain reception

facility. It confirms the results previously obtained for aflatoxin B1, for the mycotoxins, DON, ZEA, and Fumonisin B1 and B2, which co-occurred at different levels in the investigated corn lots. The study proves that:

- Broken kernels tend to foster higher contamination with levels ranging from 250-400% of the respective mycotoxin, relative to the input concentration. This means separation by size is an essential first step in lowering mycotoxin levels.
- Light product and dust from affected lots typically contains high levels of mycotoxins – this study highlighted increased concentrations of up to 1200% of ZEA. Integrated or separate air aspiration systems can reduce this significantly, while further separation of lower-density grains, with noted levels of up to 180-370% for the three different mycotoxins, decreases concentration to even lower levels.
- Colour defects are strongly associated with mycotoxin contamination. An advanced optical sorter targets colour defects effectively and with minimal removal of good product. In the current study relative levels of 272% and 529% have been measured in the rejected product for DON and ZEA, respectively.

The study concluded that the mycotoxin concentration of the cleaned product was reduced to 12-31% of the initial concentration and revealed that all removed material had high concentrations of all three monitored mycotoxins.

Sortex optical sorting demonstrated outstanding selectivity in the removal of contaminated whole kernels.

### In-depth understanding

It is this in-depth understanding of the key indicators of fungal contamination that has allowed Bühler experts to design standard flow sheets for mycotoxin reduction lines for different grains and contaminations.

As the contamination profile and thus the indicators for a fungal infection may vary, it is essential to have a solid line of defence in place, which sequentially targets all relevant indicators of mycotoxins. Bühler mycotoxin reduction lines will help to ensure a consistent and safe output quality, despite challenges imposed by natural variability and emerging hazards, enabling continued business success for grain processors. Several customer installations, at both grain reception facilities and mills, are already proving successful and demonstrating that return on investment can be achieved in less than a year. ■



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# Preventing pneumatic component failure in the food processing industry

Many pneumatic component failures can be traced back to the source of compressed air. For reliable operation and long tool life, the components of process equipment require clean, moisture free air at the proper pressure and flow rate.

by Sam Hall, OMA 1, MLT 1,  
Industrial Technical Service  
Manager, Bel-Ray Company LLC.  
belray.com

How do you protect compressed air processing equipment, such as air driven knives, saws and deboners, that are used in meat and poultry processing plants.

Pneumatic tool and airline protection is easy, use an NSF H1 food grade airline oil, designed with air line and pneumatic tools in mind, not hydraulics. A properly formulated, versatile, colourless ISO VG 22 airline lubricant maximises air tool life while optimising pneumatic system performance.

First and foremost, it is very important to install and take care of an FRL (Filter, Regulator, Lubricator), available in modular or conventional mode.

There are different sizes, styles and flow-rates available. You can assemble and plumb the three components, or install a pre-designed set up.

## How does an FRL work?

An FRL is a device that conditions air for use in pneumatic systems.

Let's start with the filter (F) which doubles as a water separator and filter. If the compressed air has not been de-hydrated, a considerable amount of water will be collected in the filter.

The filter will hold back most of the physical contaminants. The standard filter is rated at five microns.

As the air enters the filter with great velocity there is a centrifugal air rotation created throwing the water to the outside of the filter bowl where it runs downward

below a baffle collecting at the bottom of the bowl. Many times during plant surveys I have seen discoloured filter bowls full of rusty water and sludge from the lack of maintenance beyond the compressor or down line and/or from using a poor quality airline lubricant.

One very noticeable clue is the discolouration of the filter bowl, usually an indication of rusty/contaminated standing water.

This has always been a clue to me that little or no service has been performed and it is definitely an indication that a premium performance food grade air line lubricant is long overdue for this system. It is quite simple to drain the water out of the filter bowl on a regular basis. Filter bowls have a drain valve.

All you have to do is turn the valve a quarter turn and the water drains out. In fact, there is even an automatic drain type available.

Sometimes the drain valve is or will become plugged up with a goeey slime. You will need a pipe cleaner and time permitting, take it apart, clean the bowl and flush it out.

When walking through a processing plant and you see the FRL, take a moment to look at the filter bowl which is usually clear plastic and when you see brown rusty water in the bowl, point this out to the maintenance department and enquire as to the type of oil used for airline lubrication. There is a good chance you will hear 'ISO VG 32 hydraulic oil', which is a problem.

When we survey/audit industrial process plant equipment and the lubricants used, it is quite common to uncover the use of an ISO VG 32 hydraulic oil used as an airline lubricant. This is not acceptable.



When hydraulic oil, food grade or not, is being used as an airline lubricant, moisture is denser than the hydraulic oil thereby penetrating the hydraulic oil and attacking metal surfaces.

The moisture stays below the hydraulic oil film settling in and attacking the metal surface of the airlines, the moving components of pneumatic tools, all while inducing rust, gum, sludge, and power robbing deposits.

The regulator (R) is used to maintain/regulate constant air supply pressure to the pneumatic components of the processing equipment. There is usually a pressure gauge installed for at a glance monitoring.

The lubricator (L) which looks similar to the filter canister is the third piece of the FRL puzzle or the end of the line for the compressed, filtered and regulated air to mix with the proper amount of food grade airline lubricant.

The oil to air volume ratio can be adjusted on the lubricator preventing over or under lubrication of the pneumatic tools.

The outlet air, which is an atomised mixture of oil and air, not only lubricates the tools, it protects the air lines and all components of the air tool system.

## Food processing and more

Bel-Ray No-Tox Food Grade Air Line Lubricant (62050) is not only used for meat and poultry processing equipment, it is also used in pharmaceutical, beverage, and other 'clean' industries.

Not limited to the clean industry, it is also recommended and used in the mining industry, general construction and manufacturing facilities around the world.

The product is more than the highest quality USP white mineral oil that meets NSF H1 and FDA requirements for materials that may have incidental contact with food as defined under Title 21 CFR, 178.3570.

It is Kosher and Pareve approved, as well as Halal certified. It is designed and formulated to maximise air tool life and optimise pneumatic system performance.

The advantages and benefits include:

- Excellent film strength.
- Anti-wear properties.
- The unique feature of emulsifying with water.
- Bacteriological protection.

## Moisture absorption

The emulsifying feature of No-Tox Food Grade Air Line Lubricant aids in absorbing a significant amount of moisture present in all airlines. The moisture is generated by the expansion and cooling of compressed air. Thus, rust and oxidation, tool sticking and line clogging is eliminated optimising tool and system performance.

In fact, the moisture absorption properties (water in oil emulsion) means that instead of moisture interfacing with the oil creating acids that form rust, gum, and sludge, especially on tools not in use, the oil wets out due to its polarity with metal, protecting against the formation of acids that can form rust, gum and sludge, especially when air operated tools are not in use.

The superior bacteriological protection effectively inhibits the growth of certain bacteria, yeast and mould in the lubricant which can also be a contributing factor to the goeey slime found in the filter bowl/drain valve and infrequently used air tools and systems.

Bel-Ray No-Tox Food Grade Air Line Lubricant is at the head of the pack when it comes to the maintenance and care of FRLs, airline systems and the lubrication of pneumatic tools.



Richard Mallett  
European Director of  
HACCP International

# How do you know

whether equipment, materials and services are suitable for use in food processing and handling?

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Continued from page 13  
point of view the integration of modified toxins would provide more sound data for risk assessment. Together, all these facts point to the possible hazards posed by modified mycotoxins on human health.

Modified mycotoxins can be either less or more toxic than their parent compounds. For example, they may be more bioavailable due to modifications.

Toxicological data on modified mycotoxins are scarce, and current results and knowledge on the real risks and effects of these compounds are insufficient. This lack of knowledge makes it impossible to conduct a proper risk assessment.

Nevertheless, there have been studies highlighting their potential threat to food safety.

Regulations on the maximum levels of modified mycotoxins are currently under discussion in the European Union.

### Analytical methods

Mycotoxins are commonly analysed by chromatographic methods like liquid chromatography-mass spectrometry (LC-MS) and immunochemical methods like enzyme-linked immunosorbent assay (ELISA).

Immunochemical methods can, depending on the cross-reactivity of the antibody, respond to more than one compound (for example native mycotoxins and their modified forms) leading to a single result.

In contrast, LC-based separation methods might underestimate the amount of total toxins as those methods resolve each compound as a single parameter and are usually only developed for the parent mycotoxins.

### Limits of analytical methods

There are two ways to detect and quantify modified mycotoxins. A 'direct' approach that measures the whole modified compound, and an 'indirect' approach that measures the parent compound after chemical or enzymatic treatments that lead to the cleavage of modified mycotoxins, mainly by hydrolysis.

Among the advantages of the indirect method are that reference materials for modified mycotoxins are not needed for correct quantification and that all modified forms are included in the final result.

The main disadvantages are that the efficiency of the hydrolysis process cannot be verified easily

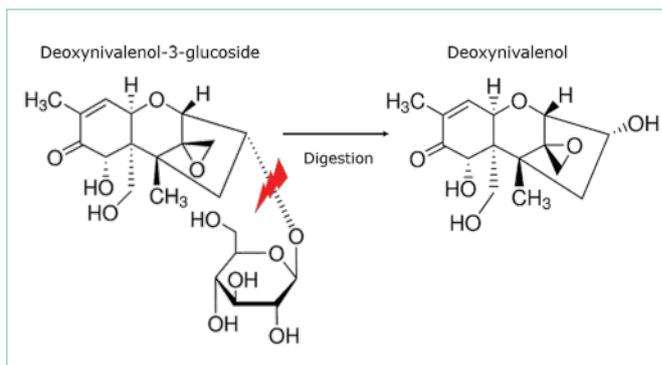


Fig. 1. Cleavage reaction of deoxynivalenol-3-glucoside to native deoxynivalenol during digestion.

and that there is no access to the quantities of the different forms of a toxin.

Therefore, it is important to develop direct methods to obtain further insight into the occurrence of modified mycotoxins.

All chromatographic technologies for parent mycotoxins are also potentially suitable for their modified forms as long as they are soluble and directly available for analysis.

One major constraint of the direct determination and quantification of modified mycotoxins is the limited availability of reference materials (pure substances or calibrants in

addition to isotope-labelled internal standards). Another drawback is that most methods require an adequate clean-up prior to the analysis procedure.

Commercially available purification devices are currently designed for native mycotoxins and might not be necessarily suitable for modified forms. Work is currently underway to develop new reference standards as well as innovative clean-up devices to determine modified mycotoxins directly. ■

References are available from the author on request.

## Proficiency testing – HYGIENE



The HYGIENE\* scheme enables you to demonstrate the quality of your sampling and analysis, and show the efficacy of your cleaning plans; helping to safeguard consumers and your reputation.

### Scheme features

- Indicator organisms by surface swabbing
- Pathogens by surface swabbing
- Total count by contact plate/slides
- Secure online reporting and data trending
- Rapid report turnaround

With over 30 years experience, more than 10,000 laboratories in 150+ countries choose PT from LGC

\*Not included in our scope of accreditation

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### Innovative thinking behind new rapid food allergen test methods

ELISA Systems is a world leader in the development of rapid food allergen test methods. Their product portfolio includes a broad range of allergen methods and the range continues to expand.

[elisasystems.com](http://elisasystems.com)

ELISA Systems offers expert technical support through three different teams in Australia, USA and Europe. The teams have extensive experience in assisting customers with implementing the tests in allergen control plans and testing regimes. This includes training, validation studies and technical

support (particularly with difficult matrices).

Their new rapid devices are very easy to use for both food products and environmental surfaces, without compromising sensitivity. The addition of an overload line in their rapid devices also overcomes the issues of false negatives previously seen with other products, giving you results you can rely on.

The company has a well-established scientific network and is an active contributor to this global community: exchanging and sharing ideas, and through collaboration and validation studies. Their focus is always on innovative thinking.

### Choosing the right hygiene monitoring system

ATP (adenosine triphosphate) hygiene monitoring systems provide real-time testing results that can alert food manufacturers that hygiene may be compromising the safety and quality of their food products.

[neogeneurope.com](http://neogeneurope.com)

There are a number of important characteristics to look for when choosing the right ATP hygiene monitoring system. The unit must be robust, handheld and simple to use in a food production environment. The AccuPoint reader from Neogen meets all of these criteria.

Samplers used with the ATP system must be fit for purpose. The AccuPoint surface sampler is patented and designed to cover a greater surface area to provide consistent results and breakdown of biofilms. AccuPoint also offers access samplers for those hard-to-reach spots and liquid samplers perfect for

clean-in-place rinse waters. A hygiene monitoring system needs to be easy to use when creating test plans, trending results and downloading information.

AccuPoint's Data Manager Software is designed with this in mind ensuring your results are stored and ordered effectively, perfect for auditing and reporting purposes.

Beyond the equipment and its accompanying software, companies should also consider the level of support from the system's supplier.

Here, Neogen Europe will provide a complete training package for a company's hygiene manager and operatives that includes an introduction to ATP, how to sample correctly, how to use the instrument, how to create test plans, how to trend the data, report building and creating objectives. They will also provide on-site assistance with setting up a system, maintaining your system and servicing.



### Staphylococcus aureus added to catalogue of identifiers

Micro Imaging Technology Inc's MIT 1000 System can now identify Staphylococcus aureus, a bacterial pathogen which can cause skin infections and commonly leads to abscess formation.

S. aureus can also sometimes lead to pneumonia, endocarditis, and osteomyelitis. It is also a common food contaminant.

[micro-imaging.com](http://micro-imaging.com)

"This is a significant step forward for the MIT 1000 technology," Dr David Haavig, Micro Imaging Technology's Chief Scientist, told International Food Hygiene.

"The completion of this S. aureus Identifier, which gives the MIT 1000 system the ability to identify S. aureus, continues to demonstrate the sensitivity of this non-biological bacterial identification technology and adds to MIT's growing catalogue of identifiers.

"Adding S. aureus to our catalogue, gets us one step closer to creating an identifier for the super-

bug, methicillin resistant S. aureus also known as MRSA."

Completing this S. aureus identifier is a significant milestone in the previously announced collaboration with the Northern Michigan University (NMU) Department of Biology. The goal of this collaboration is to rapidly and cost effectively identify and differentiate the healthcare threats, S. aureus and MRSA, using the MIT 1000 System.

The MIT 1000 is a rapid, bacterial cell-based detection and identification system that can identify pathogenic bacteria, now including Staph. aureus.

In addition to this new identifier, the MIT 1000 can also identify Listeria genus, Staphylococcus genus, Salmonella enterica serotype choleraesuis (S. choleraesuis) and Enterococcus faecalis. All MIT 1000 system bacterial identification tests consist of a simple, chemical-free, very low cost, one-minute sample preparation procedure and a two minute average hands-off sample measurement.

### Cutting edge services to ensure safe and high quality food

In order to ensure that food is safe and of high quality for the consumer, food processing areas have to be hygienically designed and properly cleaned and maintained.

[campdenbri.co.uk](http://campdenbri.co.uk)

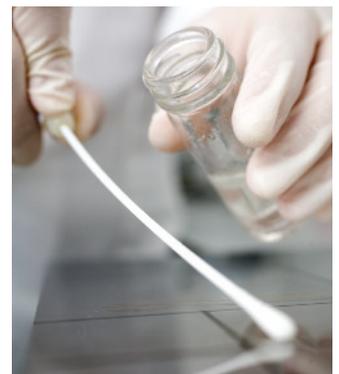
As leading experts in food hygiene, Campden BRI can help with a range of hygiene services from design of your factory or food service area, and offering advice on the design of equipment within it, and how to arrange it.

Food factory hygiene is not just about factory structure, it is also about cleaning and disinfection, optimising air movements and training of personnel; all contribute to the ultimate goal of maintaining a clean manufacturing environment and minimising the risks of food contamination.

Campden can also evaluate scenarios involving real micro-organisms in their Microbiology Process Hall.

Their cutting edge services to industry are all supported by their portfolio of food hygiene guidelines, which detail good hygiene practices and factory design.

They also help in other ways – as an independent UKAS accredited cleaning chemical and disinfectant testing centre, and in undertaking factory sampling and audits. They run a wide range of hygiene training courses.



# Options for

## In-house pathogen testing to get results more quickly

Rapid, accurate and reliable testing to ensure hygienic safety has become even more critical recently as evidenced by the number of companies struggling to preserve their reputation following contaminations that threatened human lives.

[instantlabs.com](http://instantlabs.com)

As the manufacturer of a portable, onsite DNA-based food pathogen testing system, InstantLabs monitors global trends related to hygiene as well as food safety. Unfortunately, Instant Labs have seen too many instances of good companies struck by disaster.

They believe the best way to prevent these crises is to perform pathogen testing regularly using an in-



house system. This allows frequent tests using technology that produces results in hours.

In a white paper, Y. Martin Lo, PhD, Editor-in-Chief of Food Science and Nutrition, encouraged the industry to move toward in-house testing because of the ability to get results much more quickly.

Dr Lo noted that most small to medium sized food companies rely on commercial laboratories, which require at least four days to produce tests results.

Not only does such a holding time delay the release of the products, but it also eliminates the opportunity to catch where and how the contamination might have occurred, rendering the products susceptible to recurring problems.

## Implementing a meaningful and effective sampling plan

A hygiene monitoring program can only be effective if meaningful samples are collected and delivered to the state-of-the-art rapid detection platform of choice with speed, ease, and efficiency.

Meaningful here implies that samples must include a large enough snapshot of the facility including the air, surfaces, and processes within to provide confidence in the results.

[innovaprep.com](http://innovaprep.com)

The difficulty until now has been in the collection, concentration, and delivery of your snapshot to the rapid detection method of choice.

InnovaPrep, developer of next-generation equipment for microbiology, biodefence, and quality control offers a collection of instruments enabling recovery of particles and pathogens from filters, membranes, surfaces, and objects.

The primary utility for these technologies is to greatly improve the way biological samples, especially those containing pathogenic organ-

isms, are collected and prepared for analysis. These technologies allow large-area collection and rapid sample concentration of potential threat organisms by highly efficient, exceedingly fast, and incredibly simple means.

InnovaPrep's products include the Concentrating Pipette an automated large volume bio-concentrator, the Bobcat Dry Filter Air Sampler, the TRAP Collect, and the SpinCon II Air Sampler, as well as integrateable forms of these instruments.



## Allergen test kits suitable for all size of food manufacturers

For the majority of the general public, the consumption of food is harmless and a thoroughly enjoyable experience; however it may cause life threatening reactions in those suffering from food allergies.

[r-biopharm.com](http://r-biopharm.com)

It is estimated that approximately 2-3% of adults and 6-8% of children suffer from some kind of allergic reaction to food.

In order to safeguard those at risk the labelling of food within the EU was tightened and since December 2014 all food sold in the EU has to clearly state the ingredients which could cause allergies or intoler-

ances. This EU-regulation (EU-regulation 1169/2011) is continuously updated and revised

The R-Biopharm Group have a range of test kits for allergens suitable for use by the smallest of food manufacturers to the larger testing laboratories.

These include simple dipsticks for surface testing plus ELISAs and PCR tests for quantification of simple allergens in foods to meet current and planned regulations.

SureFood Allergen 4plex is also available in the range and enables the testing of three parameters (peanut, hazelnut and walnut) plus an internal control in a single run, saving time and effort.

## For more reliability, ATP plus AMP rapid hygiene monitoring

The ATP system is widely recognised all over the world for hygiene control in the food industry. But, the world's only ATP system which can also detect AMP is the Lumitester PD and LuciPac series created by Kikkoman.

[biochemifa.kikkoman.co.jp](http://biochemifa.kikkoman.co.jp)

ATP plus AMP bioluminescence reagents are superior in time dependency and it has wider sensitivity.

AMP is derived from ATP during processing, such as heat treatment, aging and fermentation. Detecting AMP shows high sensitivity especially for manufacturing lines for ham, sausage, beer, coffee, and so on, which contain less ATP compared with AMP.

Their newest model Lumitester

PD-30 has enhanced new features. Temperature compensation is for stable measurement at 10-40°C. Multi language display options, upgraded data analysis software and self-diagnosis are also added to this model.

Invisible contaminants can be detected anywhere, anytime, by anybody in just 10 seconds with ultrahigh sensitivity attained by Lumitester PD-30 and LuciPac Pen.



## Identification of micro-organisms is key to public health

Food is not a sterile product. In fact, food may contain different kinds of micro-organisms. Apart from pathogens, where the identification of the micro-organism is key in order to avoid risk to public health, other micro-organisms should be taken into account to control the hygiene of some processes as well as their quality.

[biosystems.es](http://biosystems.es)

These micro-organisms may be part of the product if it is necessary technologically (dairy products, wine, beer, etc) and sometimes they may appear due to a contamination and thus decrease the expiry date of products.

As a result of a bacterial metabolism and growth, some by-products may appear in food, such as lactic acid, acetic acid or histamine.

The analysis of these substances may be helpful to check if the process has been done correctly as

well as to identify contamination of non-desirable bacteria.

Enzymatic methods are a sensitive, reliable and cost-effective way to identify these substances in food and biological processes like fermentation. BioSystems provides a complete system with a wide range of reagents and different auto-analysers to identify these substances in the best possible way.

To complete the food analysis range, BioSystems has reagents to check sugars, sulphites, nitrites/nitrates, mycotoxins or allergens.



## Multi-test package extends its testing capabilities

Independently proven to be the best ATP system, Hygiena has extended its test capabilities.

The EnSURE system is a small, cost effective multi-test package in support of food quality and safety. The system detects a range of generic and specific residues giving rapid results for testing both surfaces and products.

[hygiena.com](http://hygiena.com)

For instant cleaning verification tests of generic food residues, the UltraSnap surface swabs and AquaSnap liquid testing devices provide the best in-class performance.

The high sensitivity ATP hygiene test (SuperSnap), when used in conjunction with the high sensitivity protein test (AllerSnap) gives the highest level of hygiene assurance for allergen control which is better than any other single method.

ZymoSnap ALP detects alkaline phosphatase used to measure pasteurisation of milk and dairy products.

CrossCheck is used to detect specific residues from raw meat and raw fish to monitor segregation and cross contact hazards.

MicroSnap measures different bacteria giving results in 6-8 hours. The test ranges include total aerobic bacteria, enterobacteriaceae, and coliform and E. coli that have been verified and certified by AOAC Performance Tested Methods program.

Its large dynamic range also means that less time and materials are required to prepare samples thus saving more time and money.

All tests are performed on the same instrument.



## The easy way to monitor for listeria in your environmental program

The importance of listeria infections with regard to public health is well known. The source of the pathogenic Listeria strains (monocytogenes and ivanovii) for human infections is mostly food. It can induce mild gastroenteritis or even infections of the bloodstream, the central nervous system, or abortion, depending on host susceptibility.

[romerlabs.com](http://romerlabs.com)

The lethality of a listeriosis infection ranges from 20-30%. RapidChek Listeria NextDay is a highly accurate, AOAC validated, true 24-hour test for processors looking to detect listeria species in environmental samples within a shortened amount of time.

The test allows processors to move from the costly 'test-and-hold' to 'test-and-sold' by reducing time-to-result while still maintaining high accuracy. This system was validated for the detection of 50

strains of listeria and 35 non-listeria strains. All 50 listeria strains were detected by the method (100% sensitivity) and none of the 35 non-listeria strains tested were detected (100% specificity).

The RapidChek Listeria NextDay test system detects all species of listeria for a complete solution for environmental monitoring. Missing a single species of listeria in your environmental monitoring program is denying you important information about potential growth niches and possible contamination areas.



## New system offers more rapid microbial testing

A robust safety plan that integrates rapid microbial testing can help food and beverage manufacturers evolve from a traditional, reactive approach in preventing contamination to a proactive one.

[merck-animal-health.com](http://merck-animal-health.com)

Merck's EZ-Fluo system, a rapid fluorescence-based approach for detecting and quantifying micro-organisms, enables identification of contamination three times faster than traditional methods.

Included is a Microfil filtration device for collecting sample contaminants, complete with standard membranes and media, a staining reagent kit and an EZ-Fluo reader and EZ-Fluo camera. Results captured by the EZ-Fluo reader, camera and dedicated software are compatible with any identification technique.

The easy-to-use, non-destructive, EZ-Fluo system detects viable and culturable micro-organisms

down to 1cfu per sample in a broad range of filterable matrices such as raw materials, in-process samples, final products and environmental samples. Inclusion of this system into microbial testing processes can minimise costs, expedite release of products to market and help ensure consumer safety.

The EZ-Fluo system allows food and beverage manufacturers to respond more rapidly to eliminate contamination and maintain compliance with validation methods and food safety plans mandated by international food safety regulations, including the US Food Safety and Modernization Act.



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# Options for

## Rapid molecular detection and typing of *S. typhimurium*

In Europe, food safety regulation was recently reinforced to prevent poultry meats adulterated with *Salmonella typhimurium* from being commercialised.

[bio-rad.com](http://bio-rad.com)

While the current Kauffmann-White (K-W) serotyping method requires 4-5 days to assess the presence of the pathogen, Bio-Rad has developed an alternative real-time PCR method allowing

its specific detection within two days that can be used either as a rapid typing step after the detection of *Salmonella* spp or as a direct combined screening and typing method.

The previous version of this assay was based on a duplex PCR system, resulting in 100% inclusivity on 84 *Salmonella typhimurium* strains, including monophasic variants, and 93% exclusivity on 214 *Salmonella* non-typhimurium strains.

Bio-rad have now developed a novel version of the test that relies on the detection of a unique target, which was identified using a strategy of whole genome alignment and subtraction of regions of similarity. This simplified rtPCR assay displays 100% inclusivity on all *S. typhimurium* strains tested including monophasic variant and >99% on 254 non-typhimurium strains.



## Time and temperature can impact ATP test results

Results from two scientific studies conducted by Cardiff Metropolitan University in Wales, UK and commissioned by science-based technology company, 3M, demonstrate that not all ATP (Adenosine Triphosphate) hygiene monitoring systems provide the same quality of results.

[3m.co.uk](http://3m.co.uk)

Looking at the impact of time and temperature on the accuracy and repeatability of test results, the studies compared the performance of seven ATP hygiene monitoring systems. The most stable and repeatable across both parameters was the Clean-Trace Hygiene Monitoring System from 3M.

Variations in time, due to interruptions or differences in technician, and temperature, related to different manufacturing environments, occur when conducting ATP testing. Having confidence that the system used is providing consistent, accurate results despite these variations is important when faced

with the high-risk decision of starting food production.

In their conclusions, the Cardiff University scientists cautioned that the use of systems that are 'highly time or temperature dependent or had poor repeatability could lead to highly inaccurate and unreliable results'. They also stated that 'it is of paramount importance that hygiene monitoring systems provide a repeatable result to ensure consistency and accuracy of results'.



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[www.roserequipment.com](http://www.roserequipment.com)

## Conducting sampling and testing at all stages of the supply chain

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.

[biocheck.uk.com](http://biocheck.uk.com)

Bio-Check (UK) is offering a specialist test kit capability (ISO9001 approved system) for meat species identification and food allergen detection based on a wide range of technologies including Flow-Through, ELISA and PCR.

The food industry is being encour-

aged to conduct sampling and testing at all stages of the supply chain. The latest issue of the BRC Standard includes a new clause that premises and equipment shall be maintained in a clean and hygienic condition.

Bio-Check's many years' experience in food analysis enables them to advise industry on the best choice of methods.

Their FlowThrough onsite tests for raw meat species and food allergen identification can be performed within 12 minutes making them an excellent choice for real-time verification, especially at line changeovers.

For example, the Casein and Gluten FlowThrough swabbing tests are very simple to use and detect low levels of the allergen on a surface, thereby providing sufficient sensitivity for monitoring, to ensure that allergen controls are effective.



## Award winning system offers reliable pathogen detection

For more than 20 years, food companies, service laboratories and government agencies around the world have relied on the award-winning DuPont BAX system for accurate, reliable pathogen detection.

[fooddiagnostics.dupont.com](http://fooddiagnostics.dupont.com)

The BAX System breaks down samples at the genetic level, using the power of the polymerase chain reaction (PCR) to identify foodborne pathogens in raw ingredients, finished products and environmental samples. As part of your quality control system, the automated DNA-based test provides rapid results to help you make product release decisions with confidence, protecting your company and your brand.

The BAX System Q7 gives you fast, accurate results for up to 96 samples at a time. The system can detect a wide range of common food pathogens after about 3.5 hours of automated processing for standard PCR assays.

Faster, real-time PCR assays are available for many targets, with automated processing and detection complete in about 1 hour.

The BAX System X5 handles up to 32 samples in a smaller, lightweight construction to provide greater testing flexibility for a variety of testing volume, laboratory space and financial requirements.

Simple to install and virtually maintenance-free, the BAX System X5 provides superior ease of use to match your company's current work flow.

**The BAX System Q7 (left) and BAX System X5 (right).**



## Rapid two-in-one real-time PCR solution for efficient food testing

The highly specific real-time PCR kits of the SureFast series offer a quick and reliable identification of micro-organisms that may be naturally present in foods, food surfaces or as contaminations acquired during the manufacturing process, for example salmonella, campylobacter, Escherichia coli, listeria, legionella and norovirus.

[congen.de](http://congen.de)

For health protection reasons specified cell limits should not be exceeded and accurate monitoring is required. ConGen offers modular kit systems for a variety of parameters consisting of quick spin filter based DNA/RNA preparation methods and TaqMan hydrolysis probe technology for quality control along

the entire food production chain. The kit SureFast Salmonella One is an easy to handle two-in-one solution for the rapid qualitative Salmonella spp. identification.

It combines the procedures of a 15-minute speed DNA extraction (SureFast Speed PREP) using a specific lysis buffer and real-time PCR detection by SureFast Salmonella PLUS (AOAC-RI approved).

The specificity of the amplification is verified with a sequence specific probe (FAM channel).

An internal amplification control (VIC/HEX channel) is included.

The assay can be used on most commonly available real-time PCR devices. ConGen provides for all applications a full support service and complies with the highest quality standards.

## A safer and more cost effective product for the end consumer

With the rate of people contracting a foodborne illness reaching one in 10 people it is essential for food manufacturers to protect the health of consumers.

[ils-limited.co.uk](http://ils-limited.co.uk)

As the consumption of food continues to evolve and foodborne pathogen detection becomes a major concern for the food industry, it is necessary for food safety testing methods and laboratory analysis equipment to advance at the same rate. These growing pressures within food safety testing laboratories require a new technological approach to maximise efficiency through rapid and automated testing capabilities.

VIDAS and miniVIDAS instruments are multiparametric immunoassay systems designed to help provide workflow optimisation with rapid and accurate laboratory results for foodborne pathogen and food safety testing.

These systems can produce a presumptive or not detected result in two days compared to the traditional plating methodology that can take up to five days to produce the same result.

This decreases the hold time on use of raw materials and increases speed to market for the food industry, giving longer shelf life and reduced risk to companies operating on positive release – all benefiting the end consumer with a safer and more cost effective product.



# FOOD DECIDE WITH CONFIDENCE SAFETY

As the global leader in industrial microbiological control, bioMérieux Industry provides innovative diagnostic solutions (reagents, instruments, software and services) to food industries in more than 160 countries, through 41 subsidiaries and a large network of distributors.

From sample preparation to final identification of micro-organisms; bioMérieux helps food industries monitor the microbiological quality of foods to protect their brands and release their batches earlier, with full confidence.

[www.biomerieux-industry.com](http://www.biomerieux-industry.com)



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PIONEERING DIAGNOSTICS

# A different approach to managing lubrication proactively

Lubrication management can make or break asset performance. Get your lubrication management right and you have a sound foundation for asset reliability. Get it wrong or manage it incorrectly and you will be paying expensive consequences.

by Eva Otel, SKF Group.  
skf.com

There are many technologies available in relation to lubricants and lubrication that ensure the right amount and type of lubrication applied at the right time. However, identification of potential negative impacts on HACCP have led to the emergence of a different approach to managing lubrication proactively.

As good lubrication practices are widely accepted to be fundamental to plant reliability, the question is not about re-lubricating, but about the choices made to achieve the right outcome.

If you are manually lubricating – do you know how much, with what and how often? Some typical answers throughout the industry are: “I relubricate when I feel it is the right time”, “how much – depends on the size of the man using the grease gun”, “what with – depends on what grease cartridge is in the stores”. In other words, in the food and beverage industry relubrication can still be an ad-hoc activity and not scientifically applied.

## Matter of concern

The consequences of ineffective lubrication can be excessive downtime, high spares consumption, food and operator safety risks and ultimately an expensive toll on the maintenance budget.

In other words, lubrication actions can often cause as many problems as they solve:

- **Frequent re-lubrication:** implies grease and labour costs, re-lubrication to purge bearing positions.
- **Contamination risk:** food safety can often be compromised by over-lubricating.

- **Operator safety:** re-lubricating in hazardous working area with difficult access. Additionally, leaking seals can cause slips and trips. The cost of absenteeism due to injuries is high.

- **Resources and skills:** challenge of skill level in the industry to perform the correct re-lubrication and retaining that knowledge.

## Warning signs

Ever tightening industry regulations to ensure food safety are demanding different ways of managing lubrication. Very often lubrication management review is part of the HACCP certification and is checked by third party regulators, which can be employed by the producer or imposed on them by their customers, often retailers. The new Food Safety Modernisation Act (2011) for example is designed to prevent contamination in the food chain, rather than define reactive procedures for dealing with problems, once they arise.

You certainly would not wish to be one of those companies faced with a recall due to food safety issues. As a result of safety or health recall of food product:

- 55% would switch brands at least temporarily.
- 16% would never purchase the product again.
- 17% would avoid any product with the recalled brand (Harris Poll, 2014).

Furthermore, companies are pressured to set targets for environment and sustainability, which can be impacted by the way lubrication and relubrication is executed.

Zero landfill is one of the common KPIs to follow and the trend is to change from a disposal oriented strategy to an avoidance focused environmental one. For example, it is common practice to re-lubricate bearings after each washdown.

During this process, excess grease

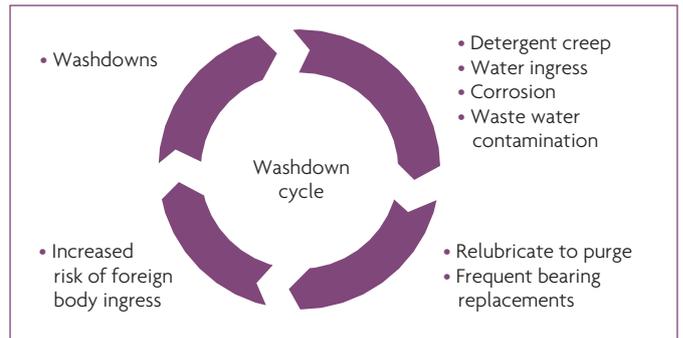


Fig. 1. The traditional cycle of washdown and relubrication presents risks to both bearing service life and the environment.

is discharged past the bearing seals (purged). This can compromise food safety, people safety and of course asset reliability. At the next wash down cycle, the grease is washed away into the plant’s waste water.

## Management strategy

It is time the food and beverage industry reconsider the way lubrication is practiced on sites and look into alternative technologies that provide food and operator safety, optimised costs and environmental benefits at the same time.

Among the dedicated technologies available to support management of the lubrication of food and beverage processing machinery, relubrication-free bearings and advanced sealing systems have emerged as potential solutions that can mitigate against risk of food and operator safety, also avoiding excess lubricants being washed into the waste water stream or disposing of grease cleaning wipes.

Start with pro-actively assessing costs, risks, opportunities and benefits of managing lubrication.

SKF have found that a technical assessment of a production process provides the structure to readily identify potential issues, risks, opportunities and benefits in mov-

ing from current approaches. The good news is that it does not require much time and from this it should be easy to plan short, medium and long term activities.

Identification of potential negative impacts on HACCP can lead to areas for improvement where SKF offers a range of technology and service offerings dedicated to helping you manage lubrication. These cover for example:

- Re-lubrication free bearing technologies.
- High efficiency seals that keep lubricants in and contaminants out.
- Lubrication management: SKF can review and optimise lubrication strategy and lubrication routines in order to:
  - Apply the right amount of lubricant at the right intervals manually or through automatic systems.
  - Use the right tools following the correct methods.
  - Set up an appropriate training program for maintenance technicians and operators.
  - SKF can also provide a smart way to detect poor lubrication condition by analysing vibration data through ‘vibration parameters’.

There are different ways to meet this challenge. SKF offer technologies that take away the need to re-lubricate, adding value from a food safety, cost, reliability or environmental perspective.

What makes the difference is their deep knowledge of rotating equipment, industry experience and commitment to reduce the cost of ownership. ■

15-25% of the maintenance budget is lost due to poor lubrication management.

Food and beverage industry estimation



## Launch of first high volume, water based aflatoxin test

Neogen has developed the first quantitative microwell test for total aflatoxin that uses only a water based solution for extraction, which completely eliminates the need for methanol and ethanol in the extraction process.

Neogen's new Veratox for Total Aflatoxin can deliver precise results ranging from 5-300ppb of aflatoxin after only 10 minutes. The ELISA microwell test detects the four principle types of aflatoxin, B1, B2, G1 and G2, with superior cross-reactivity when compared to other available aflatoxin tests.

"Veratox for Total Aflatoxin delivers precise, fully quantitative test results and eliminates the need to handle and use hazardous materials in the testing process," Ed Bradley, Neogen's vice president for food safety, told International Food

Hygiene. "The popular Veratox microwell format also allows the testing of 20 samples at a time, which is a big advantage to high volume testers who want the advantages of using a water based extraction method in a high throughput platform."

Neogen also offers a water-based aflatoxin test in a simple test strip format, Reveal Q+ for Aflatoxin Green. The Reveal Q+ test strips are read in Neogen's AccuScan lateral flow test reader to deliver precise quantitative results ranging from 2-150ppb of aflatoxin after only six minutes.

Neogen's full line of mycotoxin test kits detect aflatoxin, aflatoxin M1, deoxynivalenol (DON), fumonisin, ochratoxin, T-2/HT-2, and zearalenone.

[neogeneurope.com](http://neogeneurope.com)

## UKAS accreditation for QACs testing

Campden BRI has been awarded UKAS accreditation for the testing of benzalkonium (BAC) and didecylmethylammonium chloride (DDAC).

BAC and DDAC are both widely used in disinfectants and sanitisers due to their effective biocide properties.

The maximum residue levels (MRLs) of QACs used for disinfectant purposes was reduced to 0.1mg/kg in all foods from 0.5mg/kg by the European Commission in

August 2015. This has prompted the need for improved analytical methods.

"We can test for BAC and DDAC in all food products using sophisticated mass spectrometry which has a detection limit of 0.01 mg/kg, Julian South, Head of Chemistry and Biochemistry, told International Food Hygiene.

"As well as testing food, we can also work with companies to help them reduce QAC levels in their food products or trial alternative disinfection substances."

Campden BRI now has UKAS accreditation for 93 tests.

[campdenbri.co.uk](http://campdenbri.co.uk)

## New portable device offers more agile food safety control

A team of European scientists have developed a portable screening tool for the detection of contaminants in oil, milk nuts and dried fruit. The system, which is based on biosensing, photonic and microfluidic concepts, is aimed at simplifying the analysis process, by providing instant results with a simple, low-cost tool.

The BIOFOS project is an initiative funded by the EU under the 7th Framework Programme, which seeks to provide a commercial outlet to existing technology. At the moment, the device uses biosensors to detect up to seven contaminants present in the food sectors analysed: pesticides (phosmet) and metals (copper) in oil, antibiotics (aflatoxin M1 and penicillin) and lactose in milk and mycotoxins (aflatoxin B1, ochratoxin A) in nuts.

The system combines various functions of a Lab-on-a-Chip (LoC) system, in a small device that allows various tests to be performed, thus several contaminants can be detected instantly with a single instrument. The LoC also provides

significant advantages over other methods used until now: it does not require dangerous reagents, the biosensor can be reused up to 30 times and the device requires no specialised personnel.

The flexibility offered by the BIOFOS system can help to improve food safety, providing control of contaminants throughout the entire production process, especially in the buying and selling of raw materials.

[ict-biofos.eu](http://ict-biofos.eu)



## Detecting Listeria monocytogenes

The DuPont BAX System X5 PCR Assay for L. monocytogenes has been approved as a method extension of AOAC Research Institute (AOAC-RI) Performance Tested Method 070202.

The certification covers the analysis of a wide variety of sample types commonly tested for this deadly pathogen, including raw and ready-to-eat meats, cheese, dairy products, seafood, fresh produce and environmental surfaces.

"Listeria monocytogenes is a notable public health concern due to its ability to cause serious infection if a person ingests contaminated food. This increased concern has focused attention on the need for simple, reliable, well-validated pathogen detection methods in the food processing environment," Rob McPheeters, Diagnostics global business leader, DuPont Nutrition and Health, told International Food Hygiene.

DuPont Diagnostics offer a variety of validated PCR assays to help food manufacturers, service laboratories and retailers detect L. monocytogenes and other listeria strains with speed, accuracy and reliability in a way that best fits a company's work flow.

This AOAC-RI approval is the second of four validations being sought. The BAX System X5 PCR Assay for Salmonella was approved by AOAC-RI in November 2015, and additional validations are in progress for PCR assays to detect E. coli O157:H7 and Listeria species.

[food.dupont.com](http://food.dupont.com)



## Assisting shelf life and product deterioration assessment

Eurofins Food Testing UK has made significant investment in a new state of the art method for micro-organism identification, which, due to its ease of use, will enable clients to have same-day confirmation of results for pathogens, the organisms associated with food safety and spoilage.

Using MALDI-TOF (Matrix Assisted Laser Desorption Ionization-Time of

Flight) Mass Spectrometry, the MALDI Biotyper, can identify bacteria, yeast and mould as well as groups of organisms such as multicellular fungi, which are usually difficult to analyse due to cultural conditions.

"MALDI-TOF helps us to identify organisms associated with food safety and spoilage by virtue of their unique molecular fingerprint," Keith Watkins, Microbiology Specialist at Eurofins, told International Food Hygiene.

"MALDI will speed up the process of notification of the outcome of presumptive results thereby reducing the level of wasted time and effort due to false positives. We are aiming to have accreditation to ISO17025 early in 2016."

"It can also be used to identify unknown organisms that have not been originally targeted by cultural tests and this may be of use to identify, and to provide direction for investigations of any issues relating to product spoilage and shelf life."

[eurofins.co.uk](http://eurofins.co.uk)



## RSSL accepted as a centre of expertise

RSSL has been recognised as a Centre of Expertise in food authenticity testing by DEFRA (Department for Environment, Food and Rural Affairs). This development comes after DEFRA established its Virtual Food Authenticity Network project in line with the Elliott recommendations following on from the horse-meat scandal of 2013.

The network is overseen by DEFRA's Authenticity Steering Group which comprises of industry members including Barbara Hirst, Food Safety and Quality Consultant at RSSL.

During the crisis, RSSL played a key role in advising and assisting the food industry with rapid testing of meat supplies, using DNA techniques to establish the authenticity, or otherwise, of beef and other meat samples. RSSL's other areas of expertise in authenticity include species identification of meats (>20 species), dairy and fish (>50 species); expertise in oils and fats authentic-

ity; expertise in botanical identification by microscopy, and in specific areas such as coffee, GMO, free-from authenticity and marker compound identification for other food materials.

[rssl.com](http://rssl.com)

## Lab M gains ISO 17025 accreditation

The quality control laboratory of Lab M's facilities in Heywood, UK, has been granted ISO 17025:2005 accreditation by the United Kingdom Accreditation Service (UKAS). Lab M's schedule of accreditation covers both the physical and microbiological performance testing of the company's ready-to-use Pinnacle media range.

The five methods that were accredited include pH, sterility, fill volume, qualitative performance testing and quantitative performance testing.

All methods are based on the new requirements of BS EN ISO 11133:14.

[labm.com](http://labm.com)



## New Zealand in-house testing laboratory established

GEA has recently established its own in-house test laboratory at its facility in Hamilton, New Zealand. The new laboratory will enable GEA engineers to carry out extensive tests on the properties of powders and to design powder packaging systems based on scientifically obtained data to optimise production and reduce waste.

In the past, tests have focused on characteristics such as particle size and density but this did not enable engineers to predict how the powder would flow or how it would react to fluidisation and compaction on the production line.

The new laboratory equipment measures seven vital characteristics of any given powder and enables engineers to design systems to suit each individual product.

Having accurate information about the powders also enables GEA's engineers to advise customers

on the design of factors such as the optimum wall angle of the filling hopper and the most suitable discharge diameter from vessels. GEA will also size and shape vessels to ensure customers do not have any problems with product transport or clogging during discharge.

The new laboratory is also able to carry out the more traditional tests to classify powders for flowability, bulk density and particle size distribution. A vacuum filling test is also available to enable engineers to measure the accuracy that can be achieved when filling containers such as packs or cans with the customer's product.

The laboratory can test a wide range of powders including those for infant formulas, coffee, muscle-building formulas, for the manufacture of sports drinks; in fact almost any powder product.

[gea.com](http://gea.com)

## Bio-Rad joins food safety consortium

Bio-Rad Laboratories Inc has joined the Consortium for Sequencing the Food Supply Chain established in 2015 by scientists from IBM Research and Mars Incorporated.

The consortium is combining advanced genomics with new informatics tools to observe microbial communities in food and detect hazards in the food supply chain that can threaten safety.

Bio-Rad will contribute leading-

edge expertise in chromogenic and molecular tests for food pathogens and food quality indicators to the consortium.

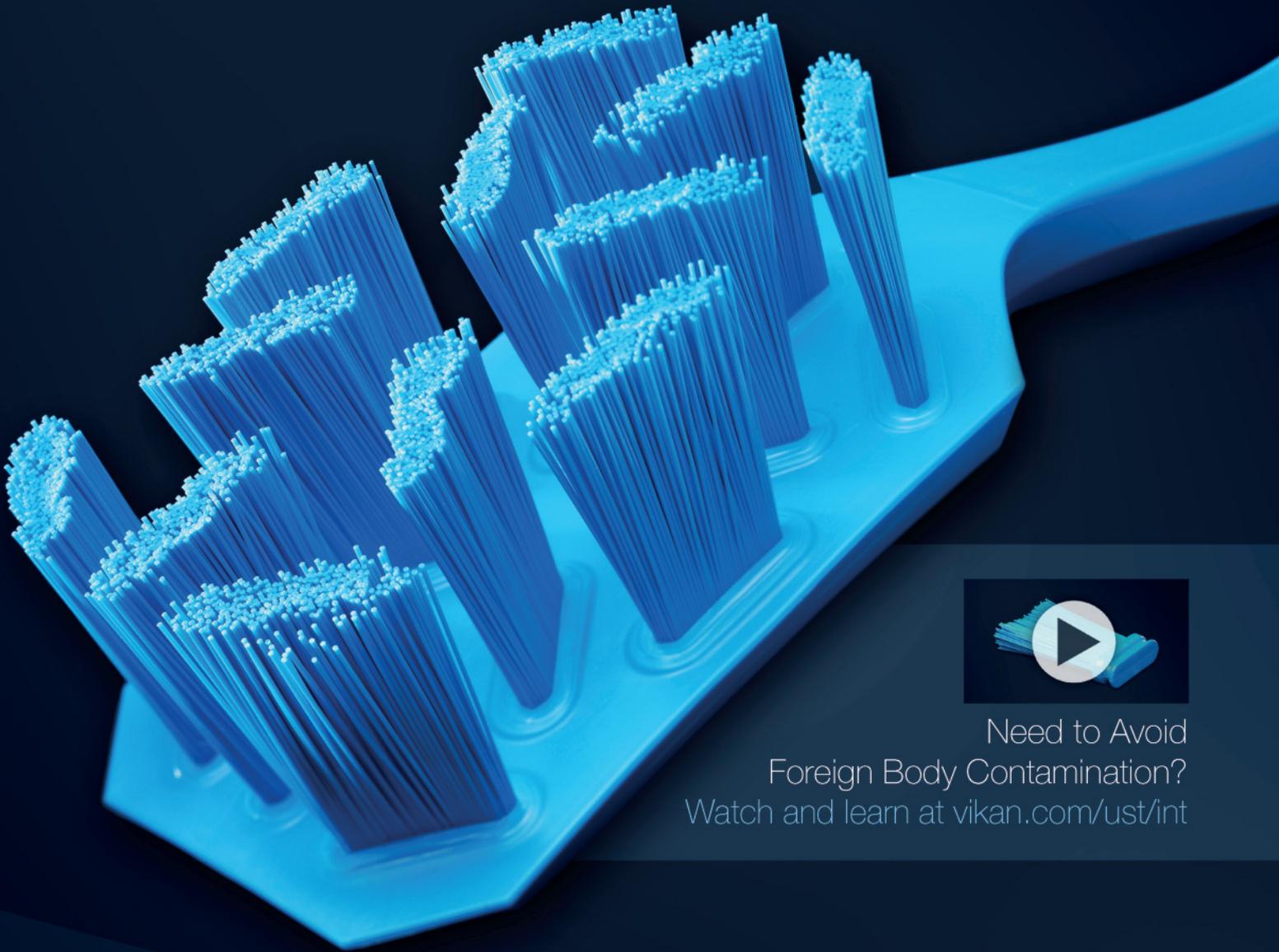
Scientists in the consortium are investigating the genetic fingerprints of living organisms such as bacteria, fungi, or viruses and to gain a better understanding of how they grow in different environments and in raw materials.

The data will help detect hazards that signal safety concerns earlier in the food supply chain to diminish the risk of contamination.

[bio-rad.com](http://bio-rad.com)

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## Brucellosis

This Malaysian paper (*Am. J. of Trop. Med. and Hyg.* 93 539-541) reports on an outbreak of human brucellosis following the consumption of raw goat's milk. The index case was the 45 year old goat farmer who had suffered for three weeks with fever, headache, severe lethargy, poor appetite and excessive sweating. He had consumed unpasteurised goat's cheese which he had also sold to the public.

Over the next year 79 people who had consumed unpasteurised milk from the same farm also went down with brucellosis. These included two workers from the farm and four laboratory staff who are thought to have caught brucellosis from samples sent to their laboratory for testing.

The first line of treatment was a six week course of rifampicin and doxycycline. A third of patients had sequelae after recovering and 21% suffered a relapse.

### Disinfectant wipes in kitchens

This American study (*J. of Appl. Microbiol.* 119 245-252) undertook a quantitative microbial risk assessment to look at exposure to *Campylobacter jejuni* contaminated surfaces during the preparation of chicken fillets.

It examined how using a disinfectant wipe to clean a contaminated work area decreases the risk of infection following preparation of raw fillets in a domestic kitchen.

The risk assessment showed that the use of wipes in this way reduces the annual risk of *C. jejuni* infections up to 99.2% by reducing the risk from 2 in 10 to 2 in 1,000.

### Rosemary and MAP for chicken

This Turkish study (*Braz. J. of Microbiol.* 46 591-599) looked at the effect of rosemary essential oil and modified atmosphere packaging (MAP) on the survival of *Salmonella typhimurium* and *Listeria monocytogenes* in chicken fillets and their meat quality during seven days of refrigerated storage.

Adding 0.2% rosemary essential oil did not reduce the numbers of *S. typhimurium* and *L. monocytogenes* but it did decrease the lightness and

redness values of stored fillets and, in combination with MAP, it reduced the level of lipid oxidation.

### Novel strategy to combat aflatoxin M1

This Indian paper (*Ind. Dairy.* 67 76-79) discusses the negative health effects of aflatoxicoses in man, formation and excretion of aflatoxin M<sub>1</sub> in the cow, toxicity of aflatoxin M<sub>1</sub>, strategies to counteract aflatoxin M<sub>1</sub> and the prospects of probiotic lactic acid bacteria for reduction of aflatoxin M<sub>1</sub> bioaccessibility and mechanisms of microbial bioremediation.

### Chinese foodborne pathogens

This survey (*Mod. Prev. Med.* 42 817-818) looks at the prevalence and the basis of their food safety risk assessment for six foodborne pathogens.

Some 212 samples were used from six food categories (cold dish, cooked meat products, cooked rice and flour products, cake, pearl milk tea products and preserved egg).

In total there were nine isolations of *Listeria monocytogenes* and seven of *Staphylococcus aureus*. Positivity rates are shown in the table below.

Food type	Positivity rate (%)
Cooked rice and flour products	20.6
Cold dishes	10.5
Cooked meat products	8.6
Cake	5.6
Pearl milk tea drinks	0
Preserved egg	0
Overall rate	7.6

Food	Reduction of <i>L. monocytogenes</i>	
	Log	%
Lettuce	1.1	91
Cheese	0.7	82
Smoked salmon	1.1	90
Frozen entrées	2.2	99

### Bacteriophages for listeria control

This American paper (*Food Microbiol.* 52 42-48) reports on the assessment of a commercially available cocktail of bacteriophages at controlling *Listeria monocytogenes* in a variety of foods. The results are summarised in the table above.

### Melamine in milk

This Chinese paper (*Food Anal. Meths.* 8 2437-2446) describes a method for a highly sensitive and selective determination of melamine in milk using glassy carbon electrode modified with molecular imprinted copolymer.

The method was successfully applied to the determination of melamine in milk products.

### Blowing defect in hard cheese

This Italian paper (*Food Microbiol.* 52 106-118) considers blowing defect in hard cheeses.

The environment produced in hard cheeses encourages bacterial synergies and competition in the ripening process. In their work the Italians investigated the community of clostridia involved in spoilage, the ecological relationships with other members of the cheese's microbiota and the effect of lysozyme.

The main genera that dominated the cheese samples analysed were *Lactobacillus*, *Streptococcus* and *Clostridium* and for the last of these the most prevalent were *Clostridium tyrobutyricum* and *C. butyricum*.

Hierarchical clustering based on the abundance of bacterial genera revealed three main clusters – one characterised by the highest pro-

portion of clostridia, the second in which lactobacilli were dominant and the third dominated by *Streptococcus thermophilus*. Ecological relationships were also found.

Lysozyme reduced *C. tyrobutyricum* in favour of *C. butyricum*. It also increased the numbers of *Lactobacillus delbrueckii* and lowered the numbers of *L. helveticus*.

### MRSA in Colombian cream cheese

This Colombian study (*Act. & Divul. Cient.* 18 29-37) looked for methicillin resistant *Staphylococcus aureus* in a locally produced double cream cheese.

From 100 samples of the cheese 68 isolates of *Staphylococcus aureus* were obtained. These were then screened for *mecA* and *coa* genes and the corresponding genes to the main staphylococcal enterotoxins by PCR.

The *mecA* gene was found in 18.2% of the *Staphylococcus aureus* isolates and the *coa* gene was found in all of the isolates.

No strain showed the gene that encodes for toxin 1 of the toxic shock syndrome.

The enterotoxin B gene was found in 42% of the *Staphylococcus aureus* isolates.

### Freezing and bacterial counts in milk

This Jordanian study (*Int. J. of Biol.* 7 9-12) investigated the effects of freezing on bacterial counts in milk. Some 30 samples of milk were frozen and kept at -18-20°C for eight weeks and tested weekly.

Key findings are summarised in the table below.

Bacterium	Count before freezing (cfus per ml)	Count after freezing (cfus per ml)
TVC	650,000	5,000
Salt tolerant bacteria	980,000	7,600
<i>Staphylococcus</i> Spp.	3,600	80



## Taking control of listeria



For anyone with an interest in how to prevent future outbreaks of listeriosis in their business, a new conference from Leatherhead Food Research is where you will hear from key international retailer and manufacturing experts about new evidence and approaches for the control of *Listeria monocytogenes*.

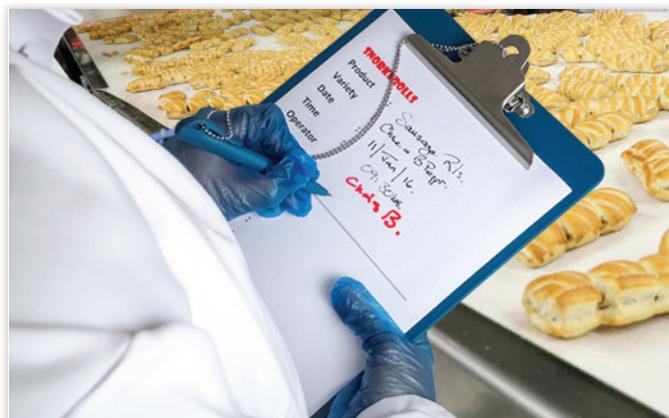
*L. monocytogenes* persists as an important foodborne pathogen. Who gets sick and why? Are all factory strains equally virulent? What products are the most affected?

You will be able to get the answers and discuss best practice and future applied R&D require-

ments for the control of *L. monocytogenes* in the food chain. The latest Leatherhead research will reveal that not all strains are equally pathogenic and why this is. This understanding can help us gain greater control of foodborne listeriosis.

The conference will be held on 28th April 2016 and leading speakers include Catherine Brown, Chief Executive Food Standards Agency, Dr Jim McLauchlin, Public Health England, Dr John Holah, Alec Kyriakides, Head of Product Quality at Sainsbury's, Professor Haley Oliver from Purdue University, USA, Dr Paul A. Gibbs, Consultant, Food Safety & Preservation, Leatherhead Food.

[leatherheadfood.com](http://leatherheadfood.com)



To reduce the risk of contamination in food a detectable paper is now available from Detectamet. Made using a patented method of combining paper and film in a detectable and durable laminate, it is highly resistant to tearing and damage from water and grease. Printed instructions, recording of process activities and making special labels are just a few examples of how the detectable paper could be used. This versatile paper can be die-cut, perforated, embossed and glued like any standard paper. It is a major step forward in contamination prevention and can further reduce the risks of expensive emergency product recall.

[detectamet.co.uk](http://detectamet.co.uk)

### Campden expands in China and Japan



As part of its expanded international regulatory affairs services for the food and drink industry, Campden BRI has appointed two international food law advisors with native language skills for China and Japan to meet a growing demand from industry to keep abreast of, and comply with, ongoing legislation changes in those countries.

[campdenbri.co.uk](http://campdenbri.co.uk)

### Making waves in wet food inspection



Fortress Technology has revealed an international breakthrough in food safety inspection.

Increasing stainless steel detection by 100% compared to the most recent generations of metal detectors, the Interceptor accurately inspects wet and conductive products and helps to eliminate false rejects, making it one of the biggest game-changers to hit the food processing sector in recent years.

Specifically designed to tackle the longstanding challenge of high product rejects when using metal detectors to inspect meat, dairy, ready meals, bakery and fortified cereals applications, Fortress's latest technology splits the frequency signals.

This means that the machine can clearly differentiate between the signal generated by the product as a result of moisture or mineral content and any metal contaminant, putting a stop to a potential stainless steel signal being 'swamped' by product effect.

[fortresstechnology.com](http://fortresstechnology.com)



### Training award for Holchem



Holchem has been awarded the accolade for Training Company of the Year at the Society of Food Hygiene and Technology (SOFHT) Awards.

The SOFHT Awards recognises and celebrates excellence within the food industry and its associated industries. Judged by a panel of experienced food industry professionals from the SOFHT's membership – winners were announced at a prestigious event at The Savoy in London.

As a leading provider of hygiene products to the food processing sector in the UK and Ireland – Holchem has found success by embracing a philosophy of providing essential training service support solutions to their customers.

Their extensive training portfolio covers a variety of courses.

[holchem.co.uk](http://holchem.co.uk)

### Multi purpose functionality



Vikan has launched their new 20 Litre Bucket, a combined mixing station, stackable storage solution, transport system and cleaning vessel that also features state-of-the-art hygienic design and renowned Vikan quality and durability.



The 20 Litre Bucket has been painstakingly designed for multi-functionality. Its optimised size, tapered shape, spill-proof lip and clever bottom handle make the bucket ideal for ergonomic ingredient mixing and pouring.

The specially designed lid and bottom comprise a secure stacking system, enabling customers to double the volume of stored goods per square metre.

A dual handle system allows for carrying by either one person or two, protecting workers when transporting heavier loads.

The bucket is also the perfect size and shape for cleaning and disinfecting utensils and cleaning tools.

Hygienic design principles such as smooth surfaces, no acute internal

angles and strategically placed drainage holes have eliminated surfaces where contamination and liquids could accumulate, helping customers minimise the risk of cross-contamination.

[vikan.com](http://vikan.com)

### Revolutionary dairy cleaning solution



Holchem has revolutionised hygiene solutions in the dairy industry, specifically the process of cleaning cross flow filtration membranes.

The cleaning of membranes is a crucial part of the whole process within dairy production, ensuring both the safety and quality of the end product.

The length of downtime due to factory shutdown, which is necessary to allow filtration membranes to be cleaned, has a direct cost implication for a dairy facility due to the loss of production time.

Holchem has found on customer sites that by correct application of their newly launched 'Fluxclean' range cleaning time has been reduced by up to 50%.

This ensures factory downtime is kept to a minimum, whilst delivering a high specification, high quality clean.

[holchem.co.uk](http://holchem.co.uk)

## Hepatitis E

**H**epatitis E Virus (HEV) is an important but extremely under-studied pathogen. It is a small, non-enveloped RNA virus (single-stranded positive-sense RNA) that is transmitted primarily via the faecal-oral route. HEV infection has a long incubation period in humans (up to 10 weeks) and symptoms that include jaundice, anorexia, hepatomegaly (enlarged liver), and mortality in pregnant women.

In recent years there has been a rise in indigenous (non travel-related) HEV infections in the UK. Indigenous infection can be transmitted in three ways: consumption of contaminated food or water; via person-to-person, or by direct contact with infected animals. Evidence indicates that HEV is widespread in the domestic pig population and that the virus has been detected in pork products. A study by DEFRA in 2012 reported that 10% of pork sausages tested at the point of sale from UK retailers were found to contain detectable HEV.

It is believed that one of the routes of HEV transmission in pig herds is through infected pigs shedding HEV in their faeces, which can then contaminate communal feed and water supplies. The handling of infectious meat post-slaughter in butcheries and using meat from multiple animals in processed pork products have also been a suggested route of contamination. There is currently no available vaccination for the virus, although studies have begun to investigate possible vaccines. These could be used as an additional control against HEV infection and contamination of pork products.

One of the main controls used to eliminate any pathogen from raw foods product, is cooking. Some viruses appear to be relatively heat stable and difficult to inactivate in this way. The effect of heat and cooking on HEV in foods has been investigated during domestic cooking and manufacturing heat processes. Studies have found that heating pork liver pate to an internal temperature of 71°C for 20 minutes is necessary to completely inactivate HEV, however further studies are required to confirm that these times and temperatures are effective for all foods. Products made with pork liver, such as liver sausages have several components, including up to 30% fat. It is possible the composition of the food product may affect HEV resistance to thermal treatment and so more research is needed.

Limited information is available on effective cleaning and decontamination procedures for HEV in the food factory environment. A safety sheet published online by the Public Health Agency of Canada (2011) states that HEV is sensitive to 1% sodium hypochlorite, 5% formalin in water, and glutaraldehyde. It is also thought that HEV is also susceptible to iodinated disinfectants (1% iodine). The inactivation of HEV through chlorine in water has been investigated by Girones et al., (2014). This study suggests the use of chlorine disinfection as an effective strategy to control HEV waterborne transmission. Further studies are required in this area, however, as the effectiveness of these chemicals on decontamination in the food manufacturing industry and their ability help reduce the prevalence of HEV infection in pigs is uncertain.

[www.campdenbri.co.uk](http://www.campdenbri.co.uk)

**Campden BRI**  
food and drink innovation

## internationalnews

### High definition cameras



A major concern of processors of frozen fruits and vegetables is the potential presence of foreign materials, such as small stones or pieces of glass, wood or plastic, in the packaged product.

Optical sorters with InGaAs cameras are highly effective in detecting and removing these objects. Bühler pioneered the use of this sensor technology in optical sorting in 2007. Now, the market leader is introducing InGaAs<sup>HD</sup>.

With double the resolution, these high definition cameras are able to detect foreign materials down to half the size previously possible, resulting in substantially better detection and removal.

InGaAs<sup>HD</sup> will be available in the SORTEX E product range and will enable processors of frozen fruits and vegetables to meet the highest safety requirements, while ensuring maximum quality of their product.

[buhlergroup.com](http://buhlergroup.com)



### New food and drink safety research



Campden BRI has announced two new food and drink safety research projects for 2016 – developed, chosen and to be steered by members of the food and drink industry worldwide.

This unique level of industry engagement will ensure the projects tackle issues of direct practical relevance to industry.

The first project – Risk reduction strategies for chemical contaminants in primary production – will shed light on where contaminants originate from in the food and feed chain and the route by which they contaminate food products during primary production.

Guidance will be produced to

help companies to minimise contaminant levels through agronomic interventions, selection of growing sites and cultivar choice.

The second project – Ensuring the chemical safety of food and drink using non-targeted screening methods – will help companies combat food fraud that could impact on food safety, by enabling the development of applications for non-targeted screening.

This complements an ongoing project which focuses on targeted methods for authenticity testing. The aim is to develop methods that will help detect fraud quickly and effectively, and help ensure the integrity of the supply chain.

Both projects will run for three years.

[campdenbri.co.uk](http://campdenbri.co.uk)

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 Foodex 2016, the UK's premier trade event for the food and drink processing, packaging, ingredients and logistics industries, will return to the NEC Birmingham, UK, in April 2016. The show provides a business platform for professionals across the full industry spectrum including bakery, beverage, dairy, fresh, ingredients, logistics, meat and seafood. Run over three days (18-20th April 2016), the show will focus on the buoyancy of the British food and drink manufacturing sector, discussing the trends that are shaping the industry, whilst showcasing the technologies allowing manufacturers to work more efficiently and productively. Visitors can discover the latest new ingredients and super foods to make an impression on the industry as well as discovering how to improve traceability, consumer trust and transform productivity.

[foodex.co.uk](http://foodex.co.uk)

### X-rays ensure yogurt quality



The accuracy, versatility and reliability of an Ishida IX-GA-65100 X-ray inspection system is helping one of Greece's leading yogurt producers to deliver the highest levels of quality control and achieve continuing success in both national and international markets.

The Ishida X-ray forms part of Kri Kri's own stringent quality control procedures and also enables the company to meet the strict requirements of its customers.

While the advanced production processes incorporate the highest hygiene levels, it is vital that Kri Kri remains vigilant against potential foreign bodies such as metal, glass or other foreign materials that could contaminate the yogurt if there was a problem with any of the equipment on the line.

[ishidaeurope.com](http://ishidaeurope.com)

### Deli's need do more for hand hygiene



For delicatessen counters in supermarkets across the UK, adherence to food standards and hygiene regulations is paramount to ensure the safety of customers. Employees are not legally obliged to wear protective gloves however appropriate

hand washing facilities must be in place.

Teal Patents, manufacturer of portable hot water hand wash units, is calling for action to ensure all deli counters – positioned in a leading supermarket or small, independent businesses – have the required hand hygiene facility and a back-up plan.

If a deli counter is not positioned adjacent to a hand washing basin connected to mains water and drainage, other hygiene solutions should be offered. Although antibacterial gel is often considered an efficient option, there is no comparison to the gold standard of hand hygiene – washing hands with soap under hot, running water.

An easy and effective solution is Teal's Super Stallette II. Entirely portable, the unit provides a hand wash under hot, running water. Touch-free, the unit features a fully automatic bluesensor which prevents tap-to-hand contamination.

The Super Stallette II can also be purchased and stored on-site as a contingency for plumbing emergencies.

[tealwash.com](http://tealwash.com)

Please mention

**International Food Hygiene**

when sourcing further information



Rapid Solutions for Food Safety

## Microbial measurement – the inconvenient truth

This series of articles is intended to take a fresh look at microbiological testing in an attempt to broaden the understanding and accept the limitations and impact on quality and safety assessments.

Microbiological tests are performed on raw materials, finished products and environmental samples to assess risks and monitor manufacturing procedures and control. Raw material and finished product testing are accepted to be of limited value because it is impractical and too expensive to do enough testing to give statistical confidence for the batch. The test results apply only to the samples examined which are random snapshots but it is assumed to be indicative of the whole consignment. More effective control is obtained by the implementation of the principles of quality assurance and preventative systems (e.g. GMP, HACCP) that are now widely adopted and included in food safety regulations. Under these systems there is a greater emphasis and reliance on environmental and in-process samples to manage and minimise cross contamination. Environmental samples give more relevant information about risks to the product. Faster results would also permit timely intervention and corrective action.

The concept of zoning is used to identify, differentiate and segregate processing areas within the facility where potential sources of pathogen and non-pathogen contamination exist (e.g. air, traffic, people, equipment and materials). Controls are identified and implemented appropriate to the business, risk of cross-contamination and proximity to the product.

The gold standard for microbiological testing is the cultural method, the principles of which have remained largely unchanged since the pioneering day of Pasteur and Koch (mid 1800s). However the results are highly variable due to many different factors some of which will be addressed in future articles.

The unit of measurement is the colony forming unit (CFU) which is fundamentally flawed by the incorrect assumption that a single colony is derived from a single bacterium. Each replicate sub-sample

will yield a result with a different colony count. It is claimed that Einstein said the definition of insanity is doing something over and over again and expecting a different result. Several replicates for different dilutions of each sample are required to obtain a reasonable approximation but this is seldom done in routine testing.

Even in the best run laboratories the uncertainty of measurement is +/- 40%. This means that the actual value is not known for certain, and for a sample expected to contain 10,000 cfu the value lies somewhere within the range 6000 to 14000 cfu on 95% of occasions but can also be outside this range 5% of the time.

Professional opinion acknowledges that the colony forming unit (CFU) is defined as 'at best, an estimate and should not be reported as absolute' (Compendium of Methods for the Microbiological Examination of Foods (APHA 1992). The working group of the International Laboratory Accreditation Cooperation states: "it is virtually impossible to know the exact microbial concentration in any sample, natural or artificial."

Despite the above, there is often an ignorance and blind belief in the CFU that leads to unreasonable expectations and demands for accuracy and precision in plate count results that cannot be delivered. Several alternative and rapid methods exist yet their adoption has been limited by the requirement to validate their performance against the highly variable culture plate count methods in processes that are not making like-for-like comparisons. Tony Sharpe (1980) stated: "The plate count from its very nature provides data so unique that they can be related to no other analytical data than those from other plate counts" Some microbiological methods can be specific and very sensitive but enumeration is very imprecise.

The challenge is to break away from the reliance and vagaries of the CFU and find a better way to assess and express microbial contamination.

*We cannot solve our problems with the same thinking we used when we created them.*

Albert Einstein

[www.hygiena.com](http://www.hygiena.com)

### Gulfood 2016

21-25th February  
Dubai, UAE  
[www.gulfood.com](http://www.gulfood.com)

### ProPak Vietnam

1-3rd March  
Ho Chi Minh City, Vietnam  
[www.propakvietnam.com](http://www.propakvietnam.com)

### CFIA

8-10th March  
Rennes, France  
[www.cfiaexpo.com](http://www.cfiaexpo.com)

### Foodex

18-20th April  
Birmingham, UK  
[www.foodex.co.uk](http://www.foodex.co.uk)

### IFFA

7-12th May  
Frankfurt, Germany  
[www.iffa.messefrankfurt.com](http://www.iffa.messefrankfurt.com)

### Food Safety Summit

10-12th May  
Rosemont, USA  
[www.foodsafetysummit.com](http://www.foodsafetysummit.com)

### IAFP European Symposium

11-13th May  
Athens, Greece  
[www.foodprotection.org/europeansymposium](http://www.foodprotection.org/europeansymposium)

### IFT

16-19th July  
Chicago, Illinois, USA  
[www.am-fe.ift.org](http://www.am-fe.ift.org)

### IAFP USA

31st July-3rd August  
St. Louis, Minnesota, USA  
[www.foodprotection.org/annualmeeting](http://www.foodprotection.org/annualmeeting)

## Sensitive about sphere size



The standard technique for measuring the sensitivity of food inspection metal detectors is to use metal test spheres.

Although this type of spherical testing tool is typically expressed by diameter in millimetres, in the real world metal contaminants are more likely to be non-spherical or an irregular shape.

"The rationale for using spheres to ascertain the system's sensitivity level is because they are the same shape from every aspect when passing through the metal detector," Phil Brown, Sales Director at Fortress Technology, told International Food Hygiene.

"Realistically, metal contaminants are more likely to be a piece of swarf, metal shard or narrow wire than a perfectly formed ball.

"Furthermore, the signal produced from a wire shape will vary greatly depending on the type of metal it is and on its angle when it passes

through the detector. This is known as orientation effect. For example, a stainless steel wire that passes through the aperture upright or sideways generates a higher signal than a straight. In the worst case a wire may produce a signal no bigger than a sphere of the same size as the diameter of the wire."

A size detection improvement as little as 0.5mm can dramatically cut the risk of metal fragments entering the production chain.

[fortresstechnology.com](http://fortresstechnology.com)



to provide their customers with a comprehensive service to support them during the life of the machine, starting from the initial enquiry right through to after sales support.

[farleygreene.com](http://farleygreene.com)

maintenance costs and our total consumption of hot melt adhesive dropped by 37%. These results would translate into annual saving of more than USD \$100,000 across all our packaging lines, significantly offsetting the additional cost of the new adhesive."

[tetrapak.com](http://tetrapak.com)

### New range of adhesives



Tetra Pak has launched a range of hot-melt adhesives and lubricants specifically formulated for use with its own filling machines.

The adhesives, developed in partnership with the world's leading adhesive producer, Henkel, offer improved bonding, lower adhesive consumption and reduced maintenance costs for cap, straw and secondary packaging applications.

The products were recently trialled by Al Buheira Lacnor Dairies LLP (Lacnor), the United Arab Emirates' category leader in fruit juice and dairy, with impressive results.

"The new adhesives delivered marked improvements in operational performance," Alfred Fernandes, Production Manager at Lacnor, told International Food Hygiene. "During the two month trial, we saw a 49% reduction in

### Expansion in New Zealand



NSF International, a global organisation with over 70 years experience in food safety auditing, training and consulting, has acquired the Burwater Pacific Group, a leading food safety training, auditing and consulting business based in New Zealand.

Through this acquisition, NSF International will expand food safety and quality services to a wider New Zealand and Australia food manufacturer and retail market.

The Burwater Pacific Group has worked closely with NSF International for several years, providing food safety auditing and training services for NSF International clients in New Zealand.

[nsf.org](http://nsf.org)



Further underlining its commitment to ensuring ultimate quality assurance and brand protection for global food manufacturers, processors and packers, Loma Systems' newly launched X5c (Compact) x-ray machine can be easily integrated with its popular and well proven CW3 checkweigher. This combination is ideal where production space is limited and helps ensure food manufacturers continue to adhere to the latest British Retail Consortium (BRC) standards and retailers' codes of practice. The combined x-ray and checkweigher system, including reject facility, measures just 2.5m in length when fully integrated. Capable of running at speeds up to 150 packs per minute, it is operated using two independent control panels and has separate reject bins for out of weight and contaminated products.

[loma.com](http://loma.com)

### New sieving technology



Farleygreene have launched a new line of innovative high technology sieving equipment.

The new SIEVGEN range represents the company's next generation of sieving equipment, and commitment to moving the technologies forward for the future.

The first design, launched in late 2015, was the SIEVGEN SG400-US unit, which is aimed directly at the additive manufacturing sector.

Other models and innovations will be launched during 2016, along with a special microsite dedicated to the new SIEVGEN technologies.

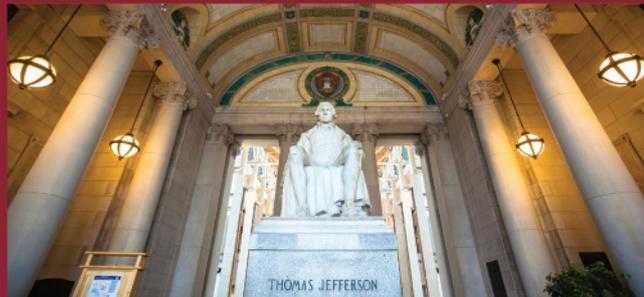
Since 2010 Farleygreene have grown substantially, due to a combination of moving to a new larger manufacturing site where they can now provide full test facilities, and most importantly they have experienced staff across all departments



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