International Food Hygiene

Volume 27 Number 4 (2016)

Improving the global safety and quality of food and drink

SORTING SOLUTIONS
Optimising safety, minimising waste and driving efficiency

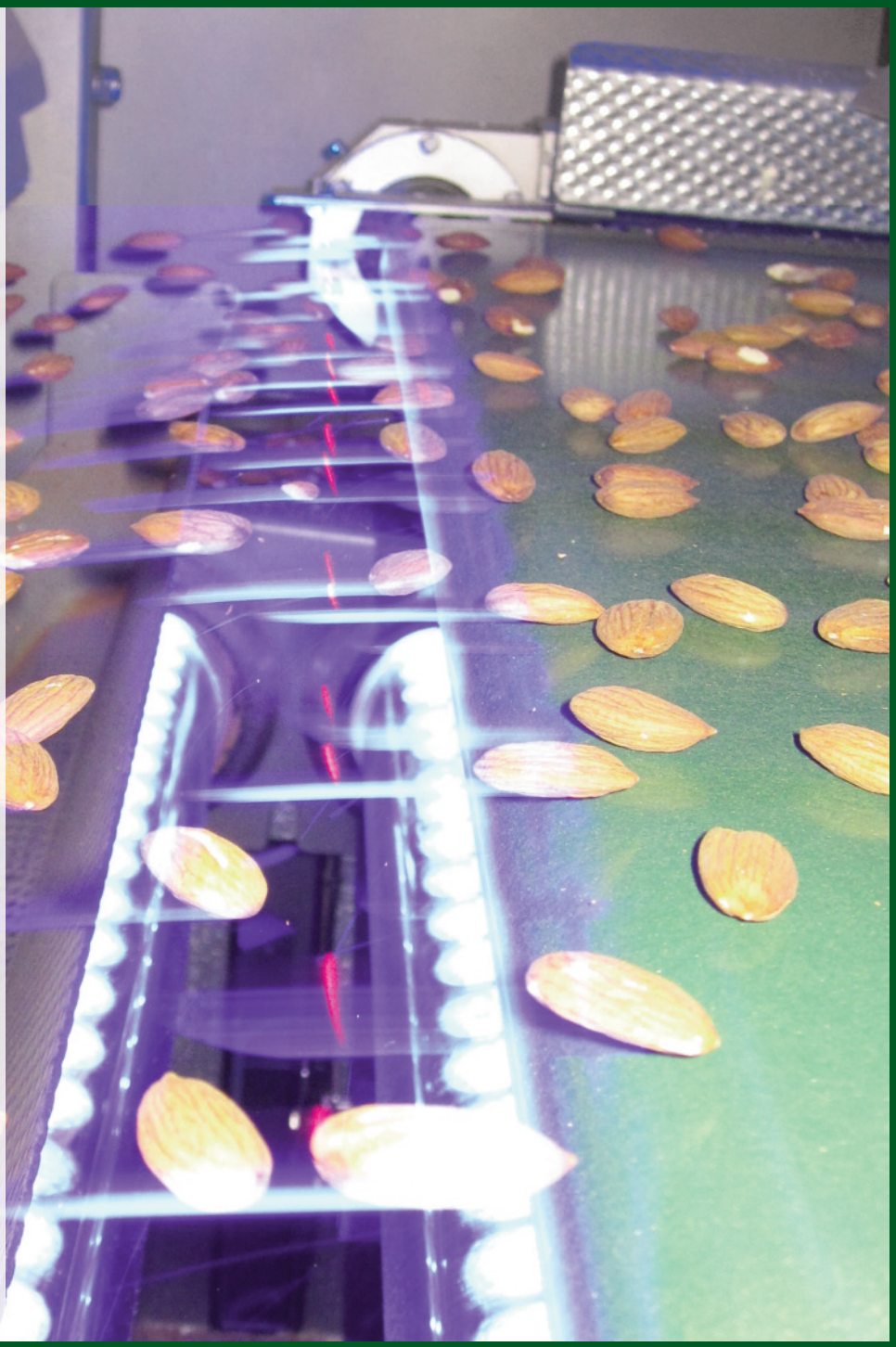
SEAL INTEGRITY
New technology for on-line assessment

CLEANING & SANITISATION
We look at options from around the world

LISTERIA
Screening methods and environmental control

DRY INGREDIENTS
Moving from low care to high care environments

TOXIGENIC E. COLI
Understanding the hazards and testing procedures



NOT JUST AN **ATP SYSTEM.**

UltraSnap™	Surface ATP - 15 seconds
AquaSnap™	Water ATP - 15 seconds
SuperSnap™	High Sensitivity ATP - 15 seconds
AllerSnap™	Allergen Prevention - 15 minutes
Allerflow	NEW! Surface Gluten - 10 minutes
PRO-Clean™	Protein Residue - 60 seconds
SpotCheck Plus™	Food Residue - 60 seconds
CROSS CHECK	Raw Meat/Fish - 5 minutes
ZymoSnap	Alkaline Phosphatase - 10 minutes
InSite	Listeria - 24 hrs NEW! Salmonella - 24 hours
MicroSnap™	Products & Surfaces - total test time:
Total TVC	7 hrs
EB	7 hrs
Coliform	6 - 8 hrs
E. coli	6 - 8 hrs

SEE WHERE HYGIENA'S **ENSURE MONITORING SYSTEM** HELPS FOOD PROCESSORS


FASTER SURFACE, PRODUCT & PROCESS VERIFICATION


SAME-DAY COLIFORM & *E. COLI* SCREENING FOR PRODUCTS & SURFACES


AFFORDABLE & EASY ATP SANITATION MONITORING


GREATER ASSURANCE FOR ALLERGEN CONTROL


SAME-SHIFT TVC/ENTERO RESULTS FOR EARLIER PRODUCT RELEASE

It's time to get more out of your sanitation monitoring system. Contact us for a free trial.

+44 (0)1923 818821 www.hygiena.com enquiries@hygiena.net

hygiena

Published by
Positive Action Publications Ltd

Publisher & Editor
Nigel Horrox: neh@positiveaction.co.uk

Marketing
Claire Fussey: claire@positiveaction.co.uk

Production
Sarah Dove: sarah@amneh.co.uk

Design & Digital
Matthew Baker: bacca@amneh.co.uk

Subscriptions
Sally Walker: sw@positiveaction.co.uk

Accounts
Anne Smith: accounts@positiveaction.co.uk

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.

food for thought

The more one travels around the industry, the more one appreciates how very few managers and consultants have any kind of understanding about the bacteriological dynamics that could occur in their products. Accordingly, many of their managerial actions or advice may be built on weak foundations. Good hygiene standards usually provide a safety net but this is not always the case.

Sometimes, their inability to understand something quite basic, like why we can not say a product is free from something for scientific, statistical or legal reasons, is quite worrying.

For example, if we test 10 or 25g of a food for 'x', all the laboratory is telling us is whether 'x' is present in the particular 10 or 25g that was tested, not the three tonnes of product that the sample came from!

The responsible manager will interpret the result by taking a whole host of other factors into account including the sampling plan and frequency, the position of the sample in the production run, the status of the ingredients, ingredient profiling and sourcing, production issues, the effectiveness of controls during processing, the homogeneity of the product, the past history of the processing facility and the past history of the product.

So, it is important to consider every laboratory result in context. This becomes particularly important in supply contracts for incoming ingredients and outgoing finished products.

In a contract we must have fair wording that is not open to possible misinterpretation. It would be reasonable to say, for example, 'the supplier shall test each production run by submitting 100g of product to an accredited laboratory who will then test for x, y and z in accordance with their accredited methods. The supplier shall immediately notify the customer of any out of specification results'. To say, 'the product shall be free from x, y, and z' is full of pitfalls for the unwary!

Some might say this is nit picking, but we live in a society where litigation is becoming more and more frequent. This being the case, we should ensure that we are not found to be wanting – both individually and as a business. ■

Cover Picture:

Cross out contamination
(Photo courtesy of Tomra Sorting Food)

ANTI-MICROBIAL
HYGIENIC TOOLS™

- ✓ Protected with Biomaster Technology that prevents over 99% of bacterial contamination.
- ✓ Autoclavable up to 134˚.
- ✓ Non-absorbant filament prevents moisture acumulating.
- ✓ Resin-Set DRS® as standard to reduce areas for possible bacterial accumulation or growth.
- ✓ Food grade stainless steel staples.
- ✓ All components are FDA and EU food contact approved.
- ✓ Anti-Bacterial properties are not affected by time, moisture, chemicals or use.

CONTACT US TODAY FOR MORE INFORMATION

REQUEST YOUR FREE SAMPLE PACK! QUOTE 'FREEAM'

In Partnership with

FDA Approved Materials

BRC GLOBAL STANDARDS

HBC HILLBRUSH.COM EST 1922

BY APPOINTMENT TO HM THE QUEEN
MANUFACTURERS OF BRUSHWARE
HILL BRUSH COMPANY LTD
MERE, WILTSHIRE

EXPERTS IN MANUFACTURING CLEANING EQUIPMENT

+44(0)17 4786 0494 | info@hillbrush.com | hillbrush.com

The targeted technical magazine that features food safety, quality and hygiene information from around the world

SUBSCRIPTIONS

International Food Hygiene is published 6 times a year and your subscription includes a free digital edition

Subscription rate
1 year – £UK60
2 years – £UK90
inclusive of airmail

Group & multiple title discounts available

Subscribe online today @ www.positiveaction.co.uk

or contact
Sally Walker
sw@positiveaction.co.uk

For details of our digital edition contact:
sharon@positiveaction.co.uk

PO Box 4, Driffield,
East Yorkshire YO25 9DJ,
England.
Tel: +44 1377 241724
Fax: +44 1377 253640

OUR FULL RANGE OF TITLES

We have six titles covering the pig, poultry, hatchery, dairy, food hygiene & meat processing sectors
Contact us for more information
info@positiveaction.co.uk

International Pig Topics | International Dairy Topics | International Poultry Production
International Food Hygiene | International Hatchery Practice | International Meat Topics

worldfocus

An executive summary of key international issues

Britain

Antibiotic success story from the British poultry sector!

The antibiotic usage data collected by the British Poultry Council (BPC) for 2015 reflects well on the poultry meat sector as it shows they have continued to make significant progress. Their 2015 data showed a 28% drop in overall usage of antibiotics compared to 2014. The BPC believes that the industry will continue to make further improvements following on from analysis of the data. The poultry sector has led the way in the UK with real progress seen since the formation of the BPC Chicken Antibiotic Stewardship Scheme in 2011. The British poultry meat sector is currently the only sector that collects and shares its antibiotic usage with the UK's Veterinary Medicines Directorate.

Canada

Do not doubt the vegan influence!

In Canada so-called 'extreme vegans' are promoting the case that not eating animals is a morally superior lifestyle. One restaurant with a vegan-or-nothing attitude is not putting off diners but is, in fact, attracting them! "I want someone who isn't vegan to say, 'That's a good burger,' not 'That's a good vegan burger," the chef says. The owner is quite evangelical about veganism and is unapologetically vegan. He says that people confuse vegan as a diet but it is more than that, it is a moral stance people take to end the suffering of animals! Vegan restaurants are now popping up all over Canada and in Toronto the first all-vegan mobile restaurant will soon be opening.

USA

The dangers of excessive data analyses?

It has been reported that US officials have found bacteria resistant to the antibiotic of last resort (colistin). This was an antibiotic-resistant strain of E. coli that was isolated from a pig's intestine which carried a gene making it resistant to colistin. This isolation was made nearly three months after the first discovery of this E. coli. Both isolations came from slaughterhouse monitorings – one in Illinois and the other in South Carolina. The E. coli strain was recently isolated from a 49-year-old Pennsylvania woman. This is the first time the colistin-resistant strain has been found in a person in the USA. Is this something we should genuinely be concerned about or is it a case of the more you look, the more you find?

Optimising safety, minimising wastage and driving efficiency

The Sortex A – designed for unique and challenging sorting applications.

Rarely a week goes by in which there is not a product recall or contamination alert in the food and drink industry. Despite manufacturers' best efforts to ensure production lines are secure – consumer confidence is frequently undermined by a high profile product recall. Something that is hardly surprising – any product which risks health is not fit for purpose.

by Charith Gunawardena, Head of Optical Sorting, Bühler Sortex, London, UK. www.buhlergroup.com

And whilst these cases clearly affect consumers, they often have knock-on implications for manufacturers too – product waste, reduced sales and, ultimately, damaged reputations.

Consequently, ensuring food safety and security is one of the most prominent business issues in the sector. By focusing on food integrity, manufacturers can build and retain customer and consumer confidence in their brands.

However, with such complex supply networks at play in the food sector, safeguarding quality is a complicated process. Technology is essential for managing the different food safety hazards. Intelligent automated systems deliver risk reduction with a level of precision and consistency that simply cannot be achieved by hand. Over the years, optical sorting solutions have repeatedly proven that they can perform the task effectively, reducing risk, increasing yield and, ultimately, driving sales.

Securing food safety

One of the biggest areas of concern when it comes to food safety, is foreign materials (FM) contamination. The simplest way to define FM is as 'something that the customer perceives as being alien to food.' This could be an item originating from the product itself, which the consumer is not expecting to eat – such as a shell or hull in ready-to-eat nuts, or objects such as sticks or stones, which come from the field, harvest, transport or manufacturing stages.

Indeed, around 60% of complaints reported in the UK and European food service sector are related to foreign material which has unintentionally entered the manufacturing process. And as global food production and processing increases to meet burgeoning demand, and supply chains get longer, more opportunities for error are created – and this is where FM detection solutions are invaluable.

Optical sorters use advanced camera technology, combined with sophisticated software that can detect colour, shape, size and non-visible infrared optical properties, to separate bad product from good. The input product is fed onto a chute and defective product, or FM, is recognised by the intelligent image processing system. Ejectors then fire air at the unwanted material, forcing it into the reject stream. Good product continues to run down the chute into the accepted product stream.

Buhler's optical sorting technology is able to remove extraneous vegetable, such as sticks, leaves and stems and other FM, including wood, cardboard or plastics, all of which can enter the processing stream from the pallets where the products are stored. It also detects other serious, and often dangerous FM, such as stones and glass. For retailers and brands, identifying these potentially harmful materials is particularly important as it can reduce the incidence of customer complaints and, ultimately, product recalls and legal action.

Sortex BioVision technology detects shell and foreign material in a wide variety of nuts, including almonds.

However, it is not just the presence of the more obvious foreign bodies which has implications for food safety. Non-declared allergens, such as gluten-containing foreign kernels in gluten-free produce, are a key cause for concern. So too is the increasingly widespread presence of mould and its hazardous metabolites, referred to as mycotoxins. Mycotoxins – found in agricultural products used for food and feed production – can pose a serious risk to human and animal health. According to the UN Food and Agriculture Organization (FAO), up to 25% of agricultural raw materials are contaminated with mycotoxins, with aflatoxins a particular concern.

To ensure that these do not appear in any food or feed products at a harmful level, it is essential that the kernels and fragments carrying the fungal contamination are removed or, at the very least, reduced to meet the minimum safety standards permitted by legislation, as well as commercial contracts. Advanced optical sorting solutions can identify and reduce mycotoxin levels in both raw materials and end products by inspecting for their specific characteristics – such as anomalous density, size and certain optical properties.

They can then target the properties that indicate the presence of a fungal contamination, thereby reducing the

Continued on page 9

CHOOSING THE RIGHT HYGIENE MONITORING SYSTEM IS CHILD'S PLAY

ACCUPOINT® ADVANCED

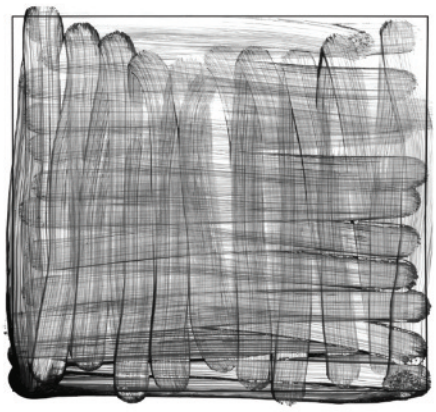
With improved, rapid ATP detection, increased reproducibility of results and enhanced tracking and trending, deciding on the perfect hygiene monitoring system just got simpler.

AccuPoint Advanced offers state-of-the-art samplers, a simple and accurate reader and new Data Manager software to effectively detect ATP from food residues and microorganisms present on surfaces and in liquids.

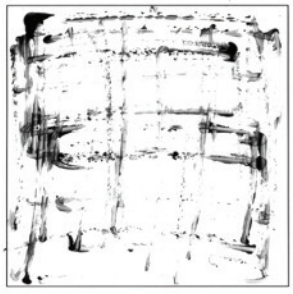
CONFIDENCE IN YOUR HYGIENE PROGRAMME · GUARANTEED

GAIN GREATER SAMPLER PRECISION

The unique design of the AccuPoint Advanced sampler gives greater sample accuracy and consistency. See the difference in the sampler pattern from Accupoint Advanced versus a traditional ATP surface swab.



AccuPoint Advanced Surface sampler pattern



Traditional ATP Surface swab pattern

NEOGEN®

The Dairy School, Auchincruive, Ayr, KA6 5HU, Scotland, UK
Tel: +44 (0) 1292 525 627 • Fax: +44 (0) 1292 525 602
E-mail: hygiene_uk@neogeneurope.com • www.neogeneurope.com

Continued from page 7
potential of mycotoxin contamination in the cleaned product.

Although, currently, there is no industry-wide legislation regarding foreign bodies entering the supply chain, there is a requirement that states that food manufacturers are responsible for the safety of their food and that products must not be unsafe or harmful to consumer health. Well-known safety standards, such as the Hazard Analysis and Critical Control Point (HACCP) system and Good Manufacturing Practices (GMP), require businesses to take into account basic safety considerations. This can be achieved with the help of accurate optical sorters, which are designed to be hygienic and easy-to-clean.

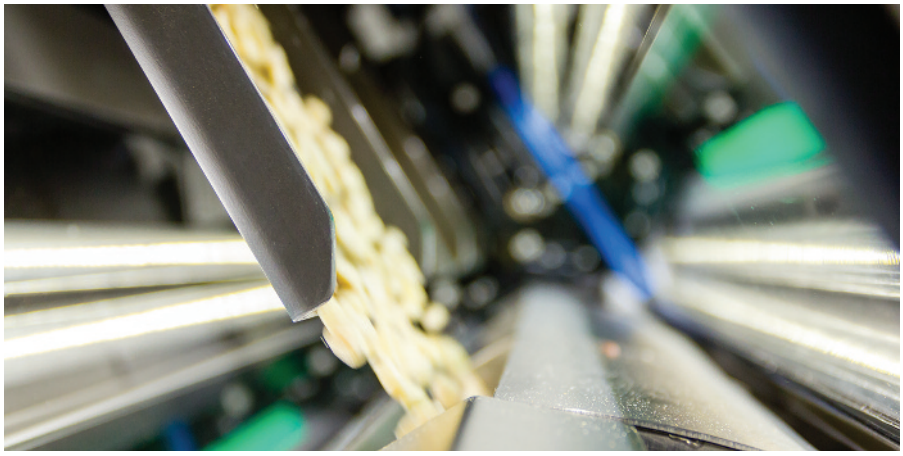
Bühler established a Food Safety Initiative over five years ago, which supports the development of technical innovations to remove foreign materials. By listening to customers and working with global food experts, it can help to address and manage emerging risks by educating the industry, developing new solutions and building knowledge through collaboration and innovation.

Waste reduction gaining ground

Waste reduction is another important issue, and one that is too often overlooked. Figures from the Food & Agriculture Organisation of the United Nations report that roughly one third of food produced in the world for human consumption every year – approximately 1.3 billion tonnes – gets lost or wasted. It highlights that in developing countries 40% of losses occur at post-harvest and processing levels. It also says fruits, vegetables, plus roots and tubers have the highest wastage rates of any food.

Optical sorting at a processing level can play a key part. Rather than accepting lower prices or even discarding produce deemed to be defective, or below a certain quality level, processors can now use intelligent technology to detect imperfect products and give retailers the opportunity to offer customers a choice between product ranges of varying qualities. One example of this is Asda's 'Wonky Vegetable box', which went on sale earlier this year. This includes 'ugly potatoes' and 'knobbly carrots' at discounted prices, providing the retailer and its suppliers, with an additional revenue stream and helping to reduce the massive issue of food waste at the same time.

Similarly, in some cases, optical sorting can offer processors opportunities to create completely new products, from what might otherwise be wasted, leading to potentially lucrative sales channels. A good example of this would be Grupo Elayo, which is making use of the health-enhancing active components of olive seeds, which are encased in the usually discarded olive stones.



Inside view of a Sortex sorter. A combination of custom designed cameras, LED lighting and high speed ejectors, accurately detect and remove unwanted and hazardous materials from the product stream.

Using Sortex precision technology, the business is able to detect and remove the hard stone fragments from the valuable seeds which, if left, would damage equipment further down the processing line.

Another example is in the rice sector, where Bühler has developed a product called NutriRice. Lower value, 'broken' rice is milled and fortified with vitamin and minerals and then extruded into whole, rice-like kernels and mixed with standard rice to give it additional health benefits. NutriRice not only helps those suffering from imbalanced diets, it can also fight malnutrition for particular population groups, including children, pregnant women and the elderly.

While identifying 'faulty' foods before they reach the supermarket shelf is clearly important for manufacturers and retailers, ensuring that products do not get ruined on the way there is also critical. Many quick-frozen fruits – raspberries and blueberries, for example – are particularly delicate and prone to damage so need to be handled carefully throughout the sorting process. This is why Bühler's optical sorters are available with soft landing systems.

A fast and accurate solution

While food safety and waste reduction are undoubtedly two areas in which optical sorting has massive positive impact, other advantages should not be overlooked.

Speed and precision are two key features of the Sortex range. Not only do the machines offer high sorting capacity to match requirements, but they also benefit from patented technology which ensures the most accurate product rejection and the highest reject concentration, thereby minimising loss of good product.

One company which recognised these benefits and installed Bühler technology at its plant is Pinguin Foods, the UK's largest frozen vegetable processor, which supplies major multiple retailers, including Marks & Spencer, Waitrose, Sainsbury's and Tesco. The company pledges to get its peas from field to freezer in under 150 minutes, which requires the process to be managed with military precision and split second timing.

Bühler is not only helping the business to achieve this but also ensuring that all foreign materials and defective products are removed quickly and efficiently, while helping to ensure the peas are as fresh as possible at the point of freezing.

Many factors contribute to the success of the food industry, but ultimately product safety will always be a number one priority for manufacturers, retailers and consumers alike and the associated issues of product quality and waste must not be underestimated.

Bühler's Sortex optical sorting solutions have been developed to address these issues. They can be used across a broad range of industries, from basic applications to the most challenging – including coffee, confectionery, dehydrated food, grains, nuts, pulses, rice, snacks, spices, fruits, vegetables and even plastics recycling – at various points in the manufacturing process, to ensure product quality, increase yield, reduce waste, improve efficiencies and deliver cost savings, every time. ■

Advanced optical sorting solutions reduce mycotoxin levels in grain to meet safety levels permitted by legislation.

Bühler optical sorting - best in foreign material detection.

For the safest food, choose the ultimate optical sorters.

Optimising food safety, minimising wastage and driving efficiency for nearly 70 years. Built into all Bühler optical sorters is the ethos of superior machine performance and revolutionary technologies with strong commitment to deliver the ultimate safest food in your packs. Engineered and designed in Bühler research and development centres, Bühler optical sorters meet a wide range of processing requirements for rice, seeds, nuts, coffee to fresh and frozen fruit and vegetable processors – removing colour defects, diseased grains, foreign materials and hard-to-detect materials. Packed with proprietary technologies including SmartEject™ accurate ejection, InGaAs High Definition cameras, PROfile™ shape detection and SORTEX ProSortX™ easy to use operating software, Bühler is the right partner of choice when food safety is your priority – helping you to match exact food safety standards.

Interested? Contact us today.
sortexsales@buhlergroup.com, www.buhlergroup.com/optical-sorting

Innovations for a better world.

BÜHLER

Screening methods and environmental control of listeria

Since the early 1980s Listeria monocytogenes has been recognised as the causative agent of several food poisoning outbreaks particularly associated with Ready-to-Eat (RTE) foods, for example cold cuts and deli meats, fermented meat products, smoked and fermented fish products and soft cheese.

It continues to be a major concern within the food industry because it has a 20% mortality rate, albeit among the young, elderly or infirm, pregnant women and immunocompromised. So what are the relative risks and controls?

by Martin Easter,
Hygiena International Ltd.
www.hygiena.com

It is estimated that listeria affects only 1-5 people in 1 million per year in developed countries. In Europe low levels of L. monocytogenes in RTE foods of 100cfu/g at the point of consumption is regarded as safe and an extremely low risk.

Estimates in the USA suggest that <0.2% of 2,500 listeriosis cases/annum are caused by foods contaminated with <100 cfu/serving, whereas >80% of these cases are caused by foods contaminated with >1 million cfu/serving.

Some countries require the absence of L. monocytogenes in RTE foods as well as in raw foods (fresh salmon) used to prepare RTE food, however numerous studies have shown that 15-30% of raw meat and fish contain listeria.

Data from USDA Food Safety and Inspection (FSIS) and studies in the literature show that 0.3-1.0% RTE meat and poultry products and deli sliced meats contain L. monocytogenes, whereas in the environment the incidence is 1.9%. Data from well-managed food manufacturing sites can achieve incidence rates that are 10 fold lower (1 positive sample in 700).

The legal liability associated with a zero tolerance approach to L. monocytogenes can result in product recalls and economic losses without a proven case of food poisoning that can be counter-productive to the choice of surveillance and detection methods used by the food processor.

Finished product testing is known to be inadequate to guarantee product quality and safety such that the preventative methods of quality assurance principles are required across the whole supply chain and manufacturing process.

Major challenge

The control of listeria in food and food environments is a major challenge for the food industry because these bacteria are ubiquitous and able to grow and survive under conditions that do not normally support the growth of other pathogens (viz refrigerated temperatures and high salt).

Listeria can persist in equipment and the environment of food plants such that cross contamination to product is a major risk.

Although the elimination of listeria is highly desirable it is, in reality, extremely hard, if not impossible, to achieve and zero tolerance is an unreasonable expectation.

The strategy has to be one of containment and risk mitigation during manufacturing driven by environmental management, robust surveillance and sanitation programs but perhaps more importantly the control of subsequent storage and handling conditions.

Environmental monitoring for listeria gives more useful information than finished product testing because it shows the extent and source of the contamination where further sanitation can be redirected.

Zoning principles

Zoning principles are used to monitor and control environmental pathogens and can also be applied for the control of spoilage organism and allergens.

Appropriate controls are required at the interface and movements between areas apply during the receipt, storage, processing and packaging of products to protect the processing environment where exposed product and materials might become contaminated from higher risk areas of the factory.

Segregation of areas is based on (physical) barriers, cleaning procedures, employee practices and control of movement of people, equipment and materials that are necessary to protect products from potential cross contamination from the manufacturing environment and its surroundings.

Classification of zones

Zones can be classified by the extent of exposure of treated in-process product to the environmental hazard such that the greater the risk of cross contamination then the greater the need for monitoring.

Pathogen testing of environmental samples is a verification activity that effective zoning is preventing/minimising microbial cross contamination. Accordingly, samples are taken during production (for example at three hourly intervals), whereas testing for post cleaning verification is an additional test requirement.

There are several methods for the detection of listeria most of which involve several steps and are usually intended to give a presence/absence result.

There is no single one-step test that will give a definite answer for the presence of a pathogen.

All methods involve one or more incubation steps in different selective media followed by additional biochemical tests to confirm the identity of the isolates. Therefore, all test results are classed as

Continued on page 12

Continued from page 11
presumptive positive until confirmation is obtained.

Consequently, the time to results can be several days although modern molecular biology methods that are specific for L. monocytogenes can give results in 24-30. These tend to be expensive and require a skilled analyst. However the difficulty of the task should not be underestimated i.e. detecting a single pathogen in a 10 x 10cm area is equivalent to detecting a single ant on a football pitch, and 9x more difficult if the swab area is 30 x 30cm.

The probability of detecting sporadic contamination is addressed more effectively by increasing the number and range of samples rather than increasing the surface swab area in fewer locations. A similar principle was adopted by Harbraken et al (1986) when addressing the low probability of detection of salmonella. There are seven species within the genus Listeria that are mostly harmless and a generic test for the genus Listeria is often used as an indicator of the risk from the pathogenic species. Given the low incidence rate of Listeria monocytogenes (<1%) and the need for frequent surveillance at numerous sample locations, there is a need for simple, rapid, cost effective screening methods.

	Positive predictive rate				
	Sensitivity (%)	Specificity (%)	Precision (%)	NPR (%)	Accuracy (%)
Listeria spp	100	81	75	100	88

Table 1. Listeria screening test with InSite Listeria.

All-in-one, self-contained swab devices containing chromogenic agars (InSite Listeria) provide a convenient test that screens out the negative samples or a presumptive positive result.

Some Enterococci and Bacilli have been known to give presumptive positive results that do not confirm as Listeria, i.e. classed as false positives only after confirmation tests have been conducted.

Clearly a high percentage of presumptive positives reduces the usefulness of the test if they subsequently confirm as negative for the pathogen.

Twice as tolerant

In some industries such as fish processing and dairy, the InSite Listeria test can occasionally generate a higher than expected false positive rate and has been modified such that both the inclusivity and exclusivity after both 24 and 48 hours have been improved.

The test is twice as tolerant to high numbers (100,000) Enterococcus) and there were no false positives due to bacilli.

The test detects 10cfu listeria in 24 hours and 1cfu listeria after 48 hours. Trials in a fish processing plant showed the overall performance was greatly improved where the specificity for L. monocytogenes was 93% and negative predictive rate 90% (see Table 1).

As more methods for listeria are developed, the balance needs to be struck between simple, rapid, cost effective, screening methods with an acceptable presumptive positive rate for environmental samples and primary preventative control and the more definitive confirmation methods for finished product testing.

However the size, number and type of environmental sample site needs to be carefully considered in order to get a better understanding of the distribution of contamination, the probability of detection, and risk. ■

Moving sieved dry ingredients from low care to high care environments

The moving of sieved dry ingredients from low care to high care environments is becoming a must for food manufacturers supplying consumer goods.

by the technical team, Farleygreene Ltd, Hampshire, UK. www.farleygreene.com

The days of throwing a bag of food product through an open sieving machine and collecting it in a bin on the floor, with the hope that it would not get contaminated further whilst waiting for it to be introduced into the process system are numbered.

Today, hygiene and quality control are of paramount importance to all manufacturers. The risks involved when leaving product within an unclassified area are not acceptable in today's high consumer demand and quality production.

Due diligence must be seen to be carried out when any ingredients are being used especially when dispensing ingredients from possibly dirty pallets and bins.

The consequences of mishandling and contamination can be catastrophic to all concerned – the manufacturer – the retailer – and the consumer. Health, wealth and happiness can all be affected.

Litigation can be very expensive and the loss of a big retail purchaser can be disastrous. To overcome the possibility of cross contamination between a 'dirty area' and a 'production clean area' has become a very necessary requirement.

Segregation between the unloading and dispensing area and the manufacturing and processing area has required special consideration to how ingredients can be properly handled and sieved; in addition operator safety becomes a special requirement.

Health and Safety demands that dust levels are maintained down to an acceptable level and the requirement in most instance to comply with the ATEX regulations all add to the issues which need resolving.

When sourcing equipment to carry out this task, it is often difficult to find items which will easily fit together and will suit the space available – a bespoke design being required in nearly all cases.

Low to high care with vacuum transfer.

Innovative solutions

Farleygreene Ltd has now designed a number of suitable options for processors. Available for the small to larger producer, each system provides a simple, effective and clean solution to segregate your ingredient loading and meeting your audit requirements.

Where small quantities of product are handled the simplest means of total segregation between areas is to locate the sieving machine to the outside of an enclosure protruding from the wall of the clean area.

This allows the clean bin to be filled through the enclosure top. By using specially moulded diaphragm seals and sleeves Farleygreene can provide a completely isolated sieving arrangement.

In addition, when combined with the '553-STS' and 'Easilift' sack tip stations, the need to clean all contact components becomes a simple and effortless job, requiring only a few seconds of downtime and just a single operator.

Where larger quantities of product are involved, and especially where space is at a premium or distance of product transfer required, it is possible to incorporate a vacuum transfer conveyor within the system.

The sieve unit can be located up to 40m away from the discharge point thus allowing enormous flexibility within a building. This arrangement provides wide scope of system design.

In addition, it is possible to charge a number of process points directly without the need for bins or storage hoppers. A system can be designed to suit almost any rate of throughput, and can be incorporated within any type of Farleygreene sieve.

Low to high care with hygiene cabinet.

High throughput

For those requiring higher throughputs of multi ingredients, a sack tip counter is very often the best option. This comprises a counter located to the segregated area wall with individual sieves mounted upon it to allow one product to each sieve.

Using the unique sealing system between sieve and clean area this arrangement serves the high rate throughput user many benefits, including speed of cleaning without any tools, faster dispensing time, and operator comfort.

Each system can be supplied with a full dust extraction system, stairways and work platforms.

Integrity and segregation

Farleygreene are noted for their ability to provide answers to difficult processing needs. Their portfolio includes many blue chip companies who use their services for not only standard sieving machinery but also to problem solve their quality needs.

Coupled with this they can provide full certification of all parts within the system as well as spares and service packages to ensure traceability and optimum performance. If you have a need for integrity and segregation of your products to suit audit specifications, Farleygreene can certainly provide the system to suit your requirements. ■

Safe, sustainable and highly effective hand washing

Deb OxyBAC is the safest and most effective antimicrobial hand wash for use in the food industry. Its rich-cream foam formula makes it extremely effective in killing a broad spectrum of bacteria, fungi and viruses that are spread via our hands.

debgroup.com

Combining Deb Foam Technology with an Accelerated Hydrogen Peroxide antimicrobial agent, OxyBAC boasts a number of benefits that separate it from other hand wash solutions in food industry environments.

Its excellent physical cleaning properties remove both visible food contamination and invisible micro-organisms, and it is entirely safe for the end user – non-toxic, non-irritating to skin, and does not induce microbial resistance.

With Deb's Accelerated Hydrogen Peroxide, OxyBAC is more environmentally friendly than alternative hand wash products. Unlike all other antimicrobial actives, hydrogen peroxide (H_2O_2) does not leave any toxic residual environmental contamination after use, simply breaking down into oxygen and water instead.

OxyBAC has also been certified by HACCP International as being food-safe and non-toxic. It is the first antibacterial soap in the UK to carry the HACCP International Certification Mark.

Permanent antibacterial surfaces help maintain food safety

Identification of exposure pathways are key to reducing direct and indirect cross contamination and improving hygiene. Biomaster antimicrobial technology applied to surfaces, equipment and textiles helps reduce the risk of bacterial cross contamination and comply with standards such as BRC Guideline 7.

sealwise.co.uk

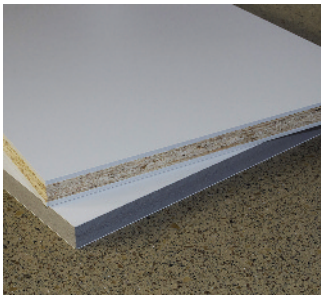
Biomaster partner Sealwise has developed an ultra-hygienic antibacterial sheet material that looks and handles like top-of-the range MFC or faced MDF but is actually made from recycled PVC.

Tough, rigid and highly resistant to all types of common bacteria, Sealwise WCB is extremely versatile and ideal for food production areas helping create a healthier environment by reducing the chances of cross-contamination.

Sealwise WCB is easy to wipe down, resistant to all major cleaning agents and can be used in commercial kitchens as a replacement for expensive stainless steel.

Biomaster antibacterial technology works 24 hours a day to inhibit the growth of microbes for the lifetime of the product and is proven to be effective against most common forms of bacteria including E. coli, campylobacter and MRSA.

The sheet material is also supplied with anti-counterfeit protection to guarantee that every product contains Sealwise WCB antibacterial technology.



Selecting optimum products for optimum cleaning and sanitation

Effective cleaning and sanitising, requires removal of soiling and reduction of microbial loading to acceptable levels. Often operatives select general purpose or combined detergents/disinfectants with little thought about the nature of the soiling, substrate construction material, or microbial challenge.

holchem.co.uk

Cleaning fatty/oily soils requires emulsification or saponification; acidic detergents are excellent for mineral scales, but will not readily remove fatty/oily soils. For fatty soils on soft metal substrates, saponification with alkaline detergents could damage the metal; a neutral emulsifying detergent might be safer. If the substrate is a polycarbonate moulding, care is needed to ensure neutral detergents do not induce stress cracking. For stains tightly adhered to substrates, oxidising chemicals are often used. These may bleach stains, rendering them invisible without removal; wetting or release agents might give better results.

For disinfectants, understanding product limitations is essential. Quat or amphoteric systems are excellent for bacteria, but for spores, yeasts or moulds, performance will be poor and an oxidiser would be better. For viruses, a product with proven virucidal efficacy is required; a bactericide may be completely ineffective.

'Optimum cleaning' is about deploying the right chemistry. To ensure this, Holchem's R&D centre is staffed by experts in chemistry, disinfection and material science.

Intelligent systems offer biodegradable solutions

Ensuring food safety is one of the main concerns of all operators in the food chain. It is important to establish not only a specific and effective biosafety management program but also a realistic and suitable one that fits the needs of the installation.

grupoox.com

The new management tools developed by OX-CTA allow biosafety to be handled in an intelligent way offering profitable investment, improved shelf-life of food products and implementing 100% biodegradable solutions.

Cleaning should be carried out with one of the OX-Netal range of products, especially formulated for cleaning of surfaces, equipment and utensils that have a lot of dirt and grease. With a high penetration level, this range offers a substantial saving of product, time and manpower in cleaning operations.

OX-Virin is the most advanced disinfectant for its time. Its high biocidal effectiveness and exclusive stabilisation means it can be used at a very low dilution rate guaranteeing complete efficacy under a wide range of hard conditions (temperature, pH, presence of organic matter, etc) with a very low contact time. No microbial resistance is created and it eliminates the biofilm and maintains high stability when diluted. Properties of the product remain intact for more than two years.

Optionsfor

Reduce malodours and enhance the workplace experience

Initial Washroom Hygiene, experts in air care, have launched the ECOBreeze Service; a unique triple-action air hygiene system which filters, cleans and fragrances the air.

initial.co.uk

The patented ECOBreeze unit is scientifically proven to effectively control the escape and transmission of smells into other areas, in line with Workplace Regulations.

The device pulls stale air through a dust filter to remove physical particles, before passing it through an activated carbon filter to remove malodorous airborne particles.

The filtered and deodorised air then travels over a perfumed wick to deliver a fresh and vibrant fragrance. ECOBreeze Service has been designed to reduce environmental impact for businesses.

It requires no batteries and the fragrances are non-aerosol based, providing a safe, environmentally-acceptable and effective workplace hygiene device. The ECOBreeze Service can filter and fragrance up to 44m^3 of air per hour. The unit can be programmed to filter and fragrance air based on specific washroom or work area requirements. Ideally, the unit should be located near to the source of any malodours for optimum efficiency; for example, above floor drains, close to washroom door entrances, in factory corridors, or near locker areas.

"The ECOBreeze Service and related aircare systems are an essential part of a company's hygiene strategy," Dr Peter Barratt, Technical Manager, Initial Washroom Hygiene, told International Food Hygiene.

The unit is installed by an Initial Service Engineer and regularly serviced by an Initial Washroom Hygiene technician for complete peace of mind. This new solution helps businesses improve health and hygiene, compliance, well being and corporate image.

Technology based approach to employee hygiene

For over 20 years, Meritech has been serving the needs of companies that are serious about elevating their food safety culture across a range of industries, including food production and packaging, food service, cleanroom, pharmaceutical, and healthcare. Meritech offers a complete line of fully-automated handwashing machines, CleanTech, that provide the only technology-based approach to employee hygiene in the world.

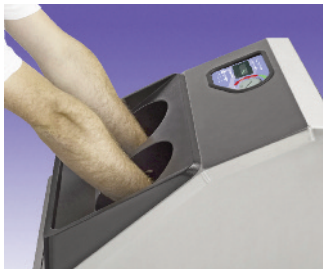
meritech.com

Meritech's line of CleanTech fully-automated handwashing systems perform a 12-second wash and rinse cycle, removing 99.98% of dangerous pathogens, exceeding SQF, BRC and cGMP standards, and preventing cross contamination. Whether your environment calls for a compact wall-mount system, or the free-standing, self-cleaning, multi-bay flagship, you are guaranteed a high-quality handwash every time.

With CleanTech, you can take it even further with footwear sanitising pans and the new Integrated Air Curtain Dryer, available on select industrial models.

Add the footwear sanitising option to create a 12-second, all-in-one hand and footwear sanitising cycle; footwear sanitising pan concentration is automatically maintained at 800-1000ppm.

Or, add the Integrated Air Curtain Dryer to reduce or eliminate paper towel usage by partially or completely drying hands while still in the cylinders. Not only can this save money, it will also reduce your environmental footprint.



Good hygiene starts with an organised workplace

Good hygiene in food preparation areas starts with the correct tools in an organised workplace. How can you prepare food in a hygienic environment if equipment is poorly maintained? What use are the correct chemicals to clean equipment, if equipment is not left to dry sufficiently or are poorly stored, allowing bacteria to harbour?

hillbrush.com

Hill Brush understand the daily challenges facing food manufacturers and have combined good organisation with good hygiene by introducing their Anti-Microbial Shadow Boards.

Every hygiene product in the Hill Brush portfolio has its own shadow image, so can be stored safely and securely on hygienic, colour coded hangers. The boards contain Biomaster antimicrobial technology and the unique silver ions actively inhibit the growth of bacteria throughout the board, offering a lifetime of protection.

Each shadow board can be designed to suit individual requirements, to the exact size and specification. The boards are co-extruded from recycled u-PVC with a solid PVC outer skin, making each one extremely durable, 100% waterproof, chemical resistant and yet can still be recycled.

For a complete hygiene solution, they can be combined with Anti-Microbial Hygienic Tools available with Biomaster silver ion technology, preventing bacterial growth on the surface of the products and the Shadow Board.

Hill Brush manufactures thousands of product lines across 10 colours to aid work area segregation and prevent cross contamination in food production areas. Based in the UK, their state of the art injection moulding facility produces the finest quality products from FDA/EU approved materials.

Gain actionable insights with cleaning in place technology

Food and beverage processors face growing challenges from increasing regulatory and documentation requirements, increasing raw material costs, and reduced support resources.

ecolab.com

Ecolab's new 3D TRASAR CIP solution helps uncover hidden opportunities to manage those costs, protect product quality, food safety, and maintain compliance.

This analytical tool was designed for Ecolab's customers and their service team to bring visibility to the critical factors of plant cleaning and sanitising.

Using this information, coupled with Ecolab's knowledge of CIP processes and critical variables, allows the system to review every wash within the facility, which had been a logistical impossibility until now.

This actionable data gives customers the information they need to strategically and effectively optimise their operations.

Totally food safe wipes with residual kill launched

Uniwipe, the leading provider of powerful, effective wipes, has launched a new innovative cleaning range to the UK market.

uniwipe.com

The range includes the Uniwipe Catering Wipe that utilises groundbreaking technology to ensure the fluid used in the wet wipes is entirely food-contact safe and has excellent residual antimicrobial activity for up to 24 hours after the surface is dry.

They are completely free from quat, alcohol and bleach, are hand safe, taint free and even safe for the environment. They also come as super-size 38 x 25cm cloths and can be used to carry out the eight-fold British Institute of Cleaning Standards technique.

The benefits of wet wipes in catering environments have been well proven. Aside from the efficiency and convenience benefits, they can help eliminate cross-contamination in environments that are prone to bacterial growth.

Following extensive research and development, all Uniwipe products are made from low-lint fabrics that effectively pick up and trap dirt due to their strength and softness.

"Cleaning and sanitisation is of paramount importance in catering environments, and it is essential that the food you make or sell is safe for consumption and has no harmful chemical residues," Edward Rabey, Director of Uniwipe, told International Food Hygiene.

"By using the correct cleaning materials, in the most effective way, you can conform to stringent health and safety regulations.

"Used in places as diverse as large industrial canteens to exclusive hotels, Uniwipe Catering Wipes are able to disinfect surfaces and conform to EN standards."

Automatic cleaning module for online analysis system

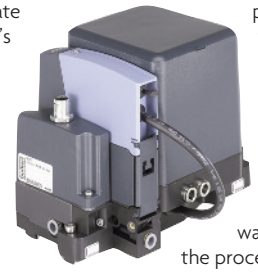
Bürkert's Type 8905 Online Analysis System supports monitoring of the most important water parameters and compliance with all directives.

burkert.com

The system gives drinking water treatment specialists an overview of the measured values to allow optimisation of the single treatment steps, therefore contributing to efficient and safe drinking water production. Now the analysis device can also be cleaned automatically.

The composition of the water sample can contaminate the sensors of Bürkert's Type 8905 Online Analysis System.

This is the case with calcium and iron deposits or algae. Coating formation in the water sample, for example, can adversely affect the turbidity measurement. To ensure consistently good measurements the sensors should therefore be cleaned at regular intervals, based on the quality of the water samples.



For this purpose Bürkert developed the Type MZ20 cleaning module, which can be connected as an add-on module upstream of the measurement system for dosing of cleaning solutions.

The module normally executes the cleaning process on a time-controlled basis. However, the module can also be programmed individually to clean when certain measurement constellations of the connected sensor cubes exist.

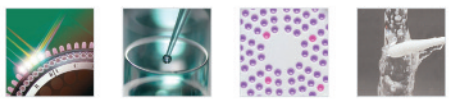
Based on the changes in the measured values the system tests whether the cleaning was successful and repeats the process, if necessary.

Food Safety
Accuracy
Speed

Assurance GDS
Pathogen Detection without Compromise

When accuracy is important, food testing labs turn to Assurance GDS® to meet their exacting performance requirements. Assurance GDS offers multiple levels of specificity including an innovative Immuno-magnetic separation step and highly specific primers and probes to ensure the accurate genetic detection of pathogens. Current assays include *Salmonella*, *Listeria monocytogenes* and *E. coli* O157:H7 and Top STEC.

Find out what makes Assurance GDS the first choice for food manufacturers committed to quality.



BIOCONTROL

Results. Right now.

www.biocontrolsys.com | info@biocontrolsys.com

New technology for on-line seal integrity assessment

Modern food packaging aims to be user friendly packaging that is easy to open, that safeguards the product during transport and display, while securing the product from contamination.

by Kira Rheinlaender,
InnospeXion APS, Denmark.
www.innospexion.dk

Most products are packaged in an inert atmosphere; hence the packaging integrity is important for shelf life and consumer safety. The latter is especially relevant for food packages aimed at babies, toddlers, and even pets. Toxicity of the food can arise due to leaking seals, causing air ingress to the product with consequential deterioration and toxic development in the product.

The solution towards the detection of leaking seals is typically the application of 'sniffing' technologies, based on sensors that can detect the inert gas that may escape from a leaking seal.

Unfortunately, these technologies are off-line and the inspection is carried out on a bulk portion of packaged products placed in a chamber which is vacuum evacuated. Hence, the assessment is slow and the technology only detects leakers, not faulty packaging which is just closed, but may leak upon transport and handling.

From a production point of view, the current ability to detect faulty packaging very late in the production cycle is unsatisfactory. It is requested that the detection can take place immediately after sealing at best. A late detection of faulty production causes losses due to non-recoverable products, packaging and efforts, as well as costs of waste handling and dumping.

On-line technologies, such as vision systems, have a large number of disadvantages that prevent these from providing a general solution.

There is thus a large demand for a novel on-line approach that can improve user safety, improve production efficiency, lower production costs, and improve quality.

X-ray technology

The use of X-rays is widespread in the food manufacturing industry. It is imposed as a demand from the large food retailers, convenience food companies and supermarkets, in order to ascertain that food product remains uncontaminated by foreign objects such as steel parts and pieces, stones, glass and large bones.

This on-line inspection at the food producers is accomplished using traditional X-ray systems which are optimal for the detection of these contaminants, even at high speed and with a high probability of detection. The technology used is basically the same for all X-ray system providers, however the system design, hygienic details, and software for detection and quantification may differ.

This X-ray technology is thus based on using an X-ray spectrum relevant for contaminants detection, and the technology is similar to X-ray systems in medical use and for security applications.

The fundamental principle of traditional X-ray inspection is the different attenuation of the X-rays based on the composition and thickness (or density) of the object inspected. Steel, glass, large bones, stones and other similar substances have an abundance of elements which are heavy, such as iron, calcium, silicates, etc. When such substances are present in a product that basically contains low atomic number elements (organic material, water), they will provide a significant contrast in the X-ray image. By digital image analysis methods, it is typically relatively easy to detect the presence of such foreign objects automatically.

However, traditional X-ray systems cannot be used to detect seal imperfections, such as leaking seal due to product contamination, or due to other errors such as folds, wrinkles, misaligned foils, and others. The reason is that very small thickness or density variations involving plastics, water, and organic materials, are invisible in a traditional X-ray image. There is simply no contrast.

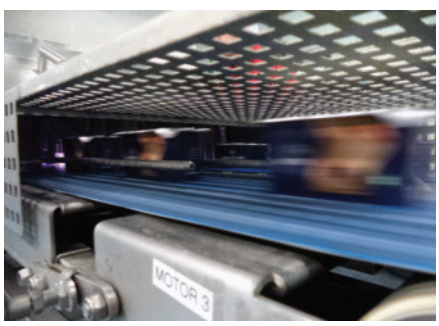
Low energy X-ray technology

The parameter controlling the contrast in X-ray imaging is the X-ray energy, the power of the X-ray source as described by the kilo voltage (kV) used for the imaging. New

Continued on page 20

The assessment of the product is carried out in real-time, making it the most cost effective inspection solution available.

Faulty packaging is a big concern for food manufacturers and, until now, there has not been any technology reliable enough to eliminate the problem altogether.



Continued from page 19
detection technology combined with new X-ray source technology, has facilitated that X-ray systems can be used at much lower energies than traditional X-ray systems used for foreign object detection.

The usage of X-rays with an energy between 15 and 20 kV in on-line applications thus facilitates imaging of very small composition, density and/or thickness differences, down to the nano-scale.

This is the fundamental basis for making it possible to inspect and detect in real-time seal imperfections and leakers in food packaging, and general process and quality control. Deviations in the seal thickness down to fractions of a micron can thus be detected and the object rejected, at production speeds of up to 180 units per minute.

The low energy X-ray system is designed to fit into the existing production line.

First use of the technology

Low energy X-ray inspection was initially applied for cork quality inspection. Quickly, it became apparent that packaging integrity assessment is a major application area, with numerous obvious cost-benefits.

Interestingly, the first applications for the packaging integrity were aimed at pet food packaging. This is an area where the risk of leakers is high and where the consequence of improper closed packages can be fatal for the pet.

Other obvious first applications areas were with baby and toddlers ready meal products. Again this is an area where the food safety is severely compromised by faulty packaging, particularly if the product is not boiled before serving.

On-line applications

Cod roe is a well known, healthy and tasty product which, among others, has been the basis of the success of Bornholms A/S, a large manufacturer of cod roe, and other canned seafood products and ready meals.

In 2011, Bornholms A/S took the decision to upgrade their entire production with the newest filling and packaging technology.

One consequence was a shift from traditional canning to sealed plastic cans. The risk assessment, however, unveiled that the long shelf life, the high product quality and the long distance transporting of products could be compromised if the seal inspection was not performed continuously, on-line.

Fast and reliable real-time assessment is, among other things, what sets the low energy X-ray technology apart from conventional technologies.

Consequently, Bornholms A/S performed a large number of tests and verifications with the InnospeXion technology, leading to the installation of a dual lane system in 2013.

This system runs one product (cod roe) constantly in line one at 150 cans per minute, and other products of different formats and dimensions on line two.

At Bornholms A/S, consumer safety has the overall focus, and health and safety procedures are required to be functional for the production to run. Therefore, the low energy X-ray system has gained a very central place as it safeguards the production chain.

A re-structuring of an entire production chain, which has been based on many traditions and procedures, is not trivial.

The line operation relative to the X-ray system thus required a number of adjustments, as well as significant training and instruction of operators and service personnel, including for cleaning and maintenance.

Non-intentional errors and mistakes appeared in various aspects of the line control, causing wrong in-feeding, wrong timing, contamination of the X-ray system by product spillage, and many others.

X-ray system design changes were required in order to match the characteristics of the new production chain, and multiple acceptance tests and trials were required for each product.

High false reject rates had to be correlated to manufacturing irregularities, to deviating tolerances of packaging materials and to other causes.

Eventually, after about a year, the complete line including the X-ray based on-line seal inspection, was running, and all procedures implemented within the production.

The X-ray system has proven capable of detecting leaks, which appear to happen in less than one out of 100-200 cans.

The leaks detected are typically not open leaks but leaks where product has contaminated the seal to a smaller or larger degree, resulting in a potentially reduced shelf life time, and hence correct rejection.

Additionally, the system safely detects other seal imperfections, especially deviating tolerances which requires contingency corrective actions by the line personnel, once the X-ray system gives the signal.

False rejects are typically below 1%, however subject to variations in the canning in-feed and other dependent parameters. Classification of rejects in different categories helps with handling so that reject pile up is minimised.

Although the packaging area is typically considered a 'dry' environment, the low energy technology has also proven successful in wet areas, such as fish and chicken fillet lines. Based on experiences from the areas, the design has included a focus on cleaning, maintenance and hygiene.

For example, lead curtains are not necessary in most applications, and cleaning with water is possible.

Outer surfaces are self drainable and low surface roughness helps to maintain cleanliness. Systems are air tight, so build up of lethal bacteria (for example listeria) is unlikely.

The value generated by the low energy X-ray technology

The InnospeXion packaging integrity assessment system is based on the newest and most effective X-ray technology, providing high contrast and high resolution X-ray images.

These high quality X-ray images are a necessity for the automatic identification and detection of seal defects and packaging irregularities, on-line, of pouch, blister and plastic canned products.

Apart from the Bornholms A/S application, the unique technology has been proven in numerous applications over many years, for example for fish bone detection in the fish processing industry.

Since 2008, the technology has been used for on-line packaging integrity assessment in the food sector.

The value creation relates specifically to:

- Instantaneous signal-giving upon detecting deviations of conformity of packaging integrity.
- Avoiding production of defective packages.
- Eliminating call-backs.
- Avoiding leaking products during transport.
- Extending product shelf life.
- Safeguarding consumer safety.

The system is not (only) designed for simple 'go – no go' inspection, but is an advanced automatic multi-functional system that through advanced software functionality can accomplish a large variety of measurement and inspection tasks relevant to the product.

Through a central PLC control of the system, all results can be made available through a number of registers that are easily interfaced to other equipment along the production line.

Hence, the automation and ready notification of deviations is central for validation of the system pay-back horizon.

The high contrast and high resolution clearly depicts every detail of the inspected product and instantaneously detects possible leaks, folds or other flaws in the package.

Typical detection and quantification capabilities

The low energy X-ray systems contribute to the much improved line control through the ability to unveil and quantify important variations of the packaging, including but not limited to ensuring that:

- the plastic can is of correct dimensions (±0.2mm).
- the plastic can thickness and density conforms to the acceptance criteria.
- the plastic can is undamaged.
- the aluminium or plastic foil is free of wrinkles and folds.
- there is no product in the seal zone.
- there is no product outside the seal zone.
- the aluminium or plastic foil is correctly placed within the acceptance seal zone.
- there is no contamination of the product.
- the right amount of product is filled into the plastic can.
- the distribution of product within the can is homogeneous.
- the density of product corresponds to acceptance criteria.
- the homogeneity of product meets acceptance criteria.

Importantly, the system can be used for plastic cans, pouches, and other packaging for convenience food where the seal can be inspected without overlap by the product.

Additionally, for packages involving a total product thickness below approximately 30mm, foreign objects in the product may also be detected.

Conclusion

The low energy X-ray technology systems differ significantly from other X-ray systems by using longer wavelength X-rays which are preferentially attenuated by small thickness/density or compositional differences.

Therefore, the use of low X-ray energy systems implies a significantly improved detection capability, and a much better discrimination between thin and/or light element objects.

Traditional X-ray systems are generally unable to image objects below 25kV, owing to the poor sensitivity of the detector used to acquire the images.

Using low energy X-rays, thickness differences down to a few micrometers can be discerned and quantified, even for low density materials such as plastics.

The use of low X-ray energy also means much reduced radiation health issues. This is manifested by the system being sufficiently shielded by 2-3mm stainless steel only, in place of hazardous lead.

Due to the very high sensitivity, the inspection can be accomplished at line speeds up to 120m/minute. However, in general, and especially with seal inspection, 30m/minute is the limit. This typically translates to 2-3 units per second, per X-ray system.

At this speed, the technology has significant potential for the automatic detection and reject signalling of seal imperfections of nanometre thickness, with surface area down to less than 2x2mm, as well as other packaging imperfections, can imperfections and foreign object contamination of the product. ■

Water activity analysers offer end of line quality assurance

Labcell has supplied five Decagon Devices AquaLab 4TE water activity analysers to McVitie's for end-of-line quality assurance of their range of cakes. These five AquaLab Series 4TE analysers replace earlier models of AquaLab that have been in use for over 20 years.

Upgrading to the newer models with temperature equilibration has benefited McVitie's through more stable measurements, plus the improved data handling means readings can be tracked easily and the information can be downloaded, stored and analysed. With the instruments being used hourly on four different lines, a great deal of data is generated and improved data management is a significant advantage for traceability and specification reviews. Because batches of cakes cannot be released unless satisfactory water activity measurements have been obtained, a fifth analyser is retained as a spare to avoid delays.

Water activity influences a cake's taste, texture and shelf life, but the most important reason for McVitie's using AquaLab analysers is to ensure the safety of its cakes because maintaining water activity below a critical limit inhibits bacterial growth. One of the key features of the AquaLab 4TE is that it makes laboratory-grade measurements in five minutes or less, yet it is robust enough to be installed and operated in a production environment. For McVitie's, this means batches of cakes can be tested and released very quickly.

labcell.com

Avure tests HPP on coconut water

In response to valid regulatory concerns of the potential risk of Clostridium botulinum in coconut water, Avure Technologies commissioned the Institute for Food Safety and Health (IFSH) in Bedford Park, Illinois, to investigate if fresh coconut water with pH above 4.6 can support the growth and toxin production of non-proteolytic and proteolytic strains of C. botulinum at 4°C and 10°C.

The results from the just completed comprehensive study indicate that spores of strains of C. botulinum are unable to germinate, grow and produce toxin in fresh coconut water, alleviating any potential concern of botulism.

"Since it is well known that HPP does not inactivate C. botulinum spores, this study investigated the potential for spores to germinate, grow and produce toxin by proteolytic and non-proteolytic C. botulinum in both filtered and unfiltered fresh coconut water treated with HPP and stored for 45 days," Dr Errol Raghubeer, Senior Vice President Microbiology and Technology at Avure, told International Food Hygiene.

Although there was an increase in the total anaerobic count during the 45 days of storage, none of these samples showed toxin production.

avure-hpp-foods.com

Real-time measurements help control key parameters

NDC Technologies, a leading global provider of precision measurement and control solutions, has been working closely with the leading food manufacturers to better control product quality and improve process performance.

NDC's latest generation of Near-Infrared (NIR) on-line gauges and at-line analysers ensure products are produced to meet their critical quality specifications including product consistency for consumers and process enhancements such as reduced scrap and improved operating efficiency.

"Controlling moisture, fat/oil, seasoning, protein and colour is important to maintain final product quality," Dr Andy Grady, Market Manager for NDC Technologies, told International Food Hygiene.

"Our MM710e gauge and InfraLab analyser are configured out of the box to deliver real-time information about the process so meaningful control can be achieved. It greatly improves processes visibility and reduces manufacturing costs."

NDC's dependable MM710e Near-Infrared (NIR) on-line gauge delivers continuous, highly accurate and representative measurements on the production line allowing for better process control and product quality optimisation.

NDC's industry leading InfraLab at-line analyser provides rapid accurate measurements of moisture, fat and protein in single or multiple component configurations in a variety of food products.

With minimal setup, the InfraLab requires no special operator skills, and takes just five seconds to make the analysis,

ndc.com

New Mocon oxygen permeation system

Material suppliers and brand owners interested in improving speed-to-market will benefit from a new permeation platform for ultra-high barrier materials that can reduce test time as much as 50%.

Mocon Inc, a leading international provider of instruments and services for testing, measuring and analysing invisible gases, is introducing its new OX-TRAN Model 2/22 10X system to help companies better manage testing costs and deliver product to market in a shorter time frame.

The instrument is ideally suited for a wide variety of applications which require ultra-high oxygen barrier. Film and resin manufacturers, converters and brand owners in industries such as food will benefit from the system's greater sensitivity for measuring oxygen transmission characteristics of films and packages.

mocon.com

New voluntary module assessing food safety culture

BRC Global Standards has launched a new voluntary module assessing food safety culture.

The module is being offered in partnership with Taylor Shannon International (TSI), industry leaders in the fields of food safety, management, education and organisational culture.

Drawing on decades of academic research, combined with TSI's workplace research in food safety management, the module was developed in order to offer a simple, cost effective way for manufacturers to receive a food safety culture assessment at the same time as their annual audit, with this exclusive new product available to all sites choosing food safety certification with BRC Global Standards.

The Food Safety Culture Module offers many benefits for manufacturers, specifiers and the wider industry. Culture is often considered a broad or blurry concept, but this assessment provides a way to evaluate food safety culture, identify areas for development, and measure the success of changes over time as a company's culture evolves.

It involves two questionnaires, one completed by employees, and the other by the external auditor following the audit. With answers measured across four categories: people, process, purpose and proactivity, the results provide both manufacturers and specifiers with a tool to evaluate site culture, and an Assessment Report with clear, actionable findings.

Food safety culture is a growing focus in the industry, and this module delivers thorough analysis and insight into working culture; complementing existing food safety programmes with valuable understanding of a site's culture and areas for action.

It is a unique way of measuring food safety and complements the existing Standard, giving a more in-depth understanding of the site and its staff. This visibility highlights areas for investment and facilitates improvement, providing the potential for a more food safety focused workforce, targeted training programmes, and greater operational insight.

brcglobalstandards.com

Fast-Track UHT and ESL beverage testing

3M's Food Safety Business has launched its Microbial Luminescence System (MLS) Beverage Screen Kit, a new rapid test for Ultra High Temperature (UHT) and Extended Shelf Life (ESL) beverages.

This new test expands the application of the 3M MLS from UHT dairy products to a wide variety of UHT and ESL beverages such as fruit juices, caffeinated drinks, coconut waters, smoothies, dairy, dairy substitutes, and dairy/juice mixtures.

The system provides a rapid method for quality release testing, reducing the time-to-result by two to three days or more, compared to traditional methods like agar plates and pH measurement.

This new and improved 3M technology provides a quicker and more reliable way to detect micro-organisms in a wide variety of beverages.

The technology is one of many innovative solutions 3M offers food and beverage industries to help optimise the quality and safety of their products and enable consumer protection.

3m.co.uk

Commitment to delivering best in class

LRQA is the first assurance provider to have been awarded global accreditation by the United Kingdom Accreditation Service (UKAS) for making the transitions against the world's leading ISO management systems standards.

The scope of the accreditation includes Food Safety (ISO 22000) and Supply Chain Security Management Systems (ISO 28000).

LRQA has also been awarded global accreditation against International Occupational Health & Safety management system standard OHSAS 18001.

lrqa.com

Merck have introduced the IsoBag for faster, easier and more convenient transfer of contact and settle plates to production isolators. The new IsoBag offers a more streamlined alternative for environmental monitoring, and helps make workflows more efficient, productive and flexible. In traditional environmental monitoring workflows, single-bagged plates are decontaminated and stored in the isolator. Limited space in the isolator allows storage of only a small supply of ready-to-use plates. When this supply runs out, workflows are interrupted for additional decontamination cycles. The new IsoBag increases operation up-time by eliminating these decontamination cycles and allowing for an uninterrupted workflow.

merckgroup.com

Touchscreen spiral plater launched

WASP Touch is a new spiral plater from Don Whitley Scientific Ltd that is designed for the needs of modern microbiology laboratories. This is a fundamentally different plater with no need for a separate vacuum source.

The system is simple to use and provides real cost savings and process improvements, including:

- Touchscreen operation.
- New automatic sanitising system automatically maintains correct liquid levels in sanitising solutions – patent pending.
- Illuminated, covered working area.

Automated Intelligent Monitoring Software (AIMS) guides users through set-up and daily check routines to ensure consistent, trouble-free plating.

Sample may be aspirated from beakers, bottles and tubes – providing maximum flexibility in use. The system incorporates a powerful diagnostic tool that automatically logs date, time, deposition, user name and number of plates produced.

dwscientific.co.uk

Quiet, clean, powerful blending revolution

Synbiosis has introduced ProBlend, its new compact automated sample blender. This easy-clean system with its innovative paddles is an ideal choice for food microbiologists looking for quiet, yet effective sample blending.

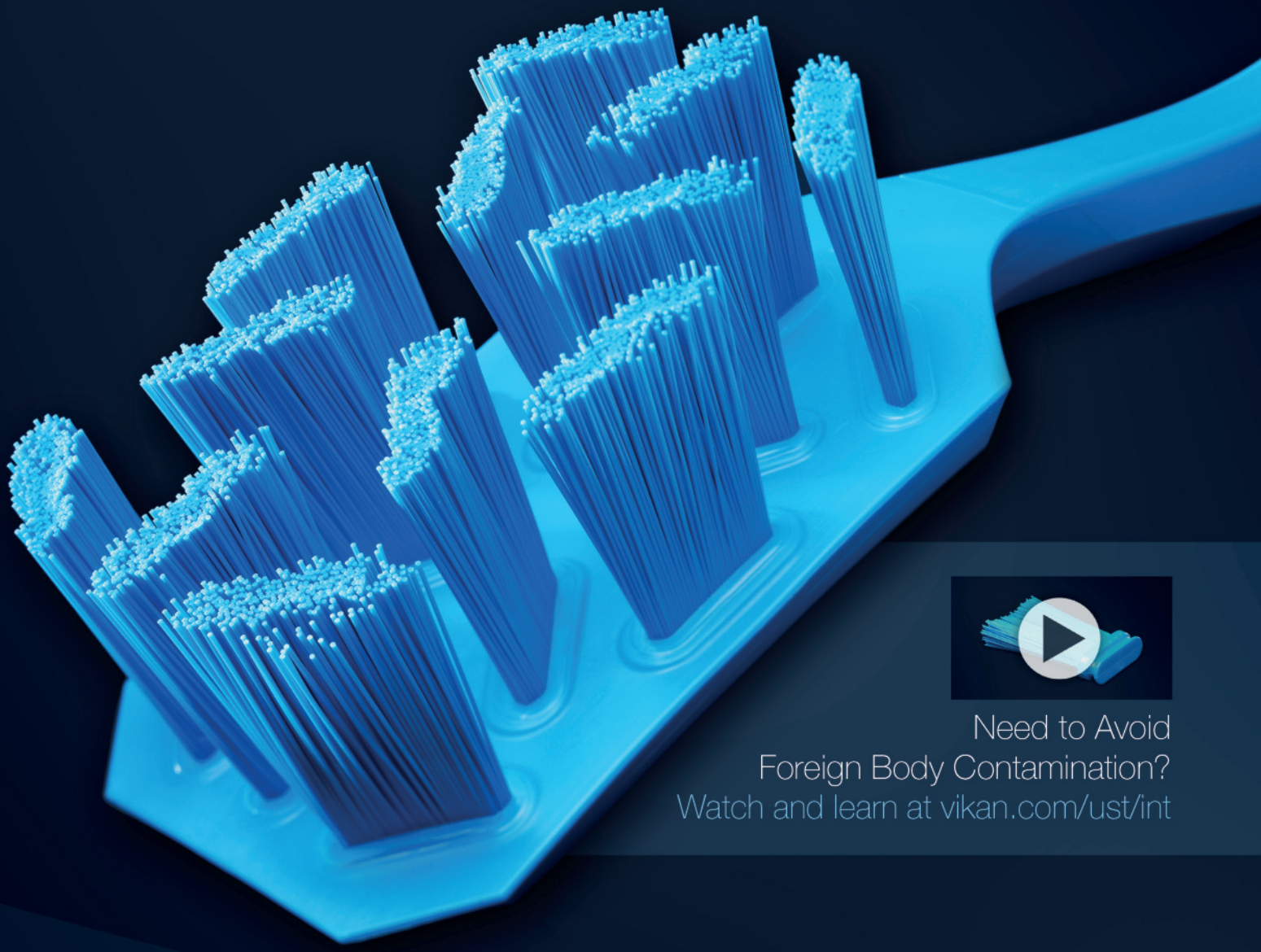
ProBlend is simple to load and uses automatic bag closing technology, ensuring the blending bags are tightly sealed to prevent unwanted leaks and spills.

Featuring a stainless steel chamber, with a waste drawer for spillage collection, as well as a removable door and quick release paddles, the ProBlend is also easy to take apart and clean if an accidental leak does occur.

synbiosis.com

Reinventing Filament Security

With Ultra Safe Technology



Need to Avoid
Foreign Body Contamination?
Watch and learn at vikan.com/ust/int

Ultra Safe Technology
Vikan Setting New Standards in Security, Safety and Hygiene

8 Colours
Worlds most comprehensive colour coding system

Vikan
ADVANCING HYGIENIC CLEANING

Irradiation of dairy products

This British review **(Food Bioproc. Tech. 9 751-767)** looked at irradiation processes in the production of dairy products.

Irradiation is an emerging non-thermal technology that is used for destroying macro- and micro-organisms that could be in food by exposure to γ-rays from radioactive isotopes (cobalt^{60} or caesium^{137}) or an electron accelerator under a controlled environment.

Irradiation is being more widely researched with regards to food keeping quality and safety and it also has the potential to reduce allergenicity or produce sterile diets for the immunocompromised. The use of irradiation for dairy products has received little attention due to the complexity of product varieties.

This review focuses on the irradiation process as an emerging technology and its specific application to dairy products.

Ovine and caprine Italian MRSAs

In this Italian study **(Small Rum. Res. 135 26-31)** the prevalence of Methicillin Resistant Staphylococcus aureus (MRSA) in sheep and goat bulk tank milk samples was ascertained in southern Italy. Nasal swabs were taken from people working on positive farms and screened for the same bacterium.

MRSA isolates were characterised by *spa* typing, MLST and SCC*mec* typing and tested for antimicrobial resistance. MRSA was detected in two of 162 (1.23%) of the bulk milk tank milk samples that were tested.

One came from a sheep farm and the other from a goat farm. Human nasal swabs yielded MRSA.

The milk and human isolates from the goat farm had identical genetic profiles. On this farm all the isolates had a general multidrug resistance and milk and human isolates had the same antimicrobial resistance patterns.

Qualitative screening for antimicrobials

This Chinese paper **(J. of Chrom., B 1017/1018 82-88)** details a method that examined animal derived foods for 120 drugs belonging to 12 families of veterinary antimicrobial agents – quinolones, macrolides, β-lactams, nitroimidazoles, sulphonamides, lincomycins, chloramphenicols, quinoxalines, tetracyclines, polypeptides and antibacterial synergists, as well as other compounds that were not in one of these groups.

The animal derived foods included meat, liver, eggs and milk.

The limits of detection and limits of quantification were 0.5-3.0μg per kg and 1.5-10.0μg per kg respectively. This method was successfully used to monitor food samples and was a simple, fast and robust method.

Staphylococcus aureus in cheeses

This Polish paper **(Toxins 8 62)** describes a three year study into the prevalence, enterotoxinogenicity and antimicrobial resistance of Staphylococcus aureus isolates from dairy farms with small scale cheese production units.

Samples of raw milk, semi-finished and finished products and swabs were collected from nine farms.

A total of 244 samples were examined, of which half (122) were contaminated by Staphylococcus aureus including 18 of 26 (69.2%) mature cheese samples.

With regards to the swabs the highest contamination rates for coagulase positive samples were from hand swabs from the cheese makers. None of the cheeses contaminated by coagulase positive Staphylococcus aureus contained staphylococcal enterotoxins. However, some 45% of the Staphylococcus aureus isolates contained staphylococcal enterotoxin genes (see table above).

Gene	Prevalence	Percentage
Possessing genes	55/122	45.1
sed, sej and ser	26/55	47.3
sep	15/55	27.3
seg and *sei*	9/55	16.4
sea	1/55	1.8
sec, seg and *sei*	9/55	16.4
Sed, sej, sep and *ser*	1/55	1.8

Antimicrobial resistance levels were satisfactory.

Stored bulk tank milk

This Irish study **(J. of Dairy Sci. 99 3367-3374)** looked at the effects of storage temperature and duration on the microbiological quality of bulk tank stored milk (2, 4 and 6°C) on the farm for periods in excess of 48 hours when milk is added twice daily.

The total and psychrotrophic bacterial counts of milk stored at 6°C increased with increasing storage duration. The total bacterial count in milk stored at 2 and 4°C did not increase but the psychrotrophic count rose significantly in milk stored at 4°C between 0 and 96 hours. The numbers of proteolytic and lipolytic bacteria were not affected by temperature or storage time. Presumptive Bacillus cereus were found in 10% of the milk samples. A greater incidence of sulphite reducing clostridia occurred in the autumn compared with the summer samples.

It was concluded that milk produced on farm with minimal bacterial contamination can be successfully stored at 2 or 4°C for up to 96 hours with minimal effect on its microbiological quality.

Cooking and tylosin residues

The objective of this Iranian study **(J. für Verb. und Lben. 11 53-60)** was to assess the effects of various microwave and boiling treatments on the stability of different concentrations of tylosin – a veterinary antibiotic – (100, 200 and 300μg per kg) in chicken meat balls that were boiled at 100°C for 10, 20 or 30 minutes or microwaved at 450W for 60, 90 or 120 seconds.

The tylosin was measured in raw and cooked samples by high performance liquid chromatography. The boiling and microwave processes significantly reduced tylosin levels and there were negative correlations between cooking time and reduction in percentage tylosin.

In addition, the tylosin reduction percentage in chicken meat balls that were boiled depended upon the starting concentration in the raw sample. There was a relationship between tylosin reduction percentage and the increase in the initial temperature and weight loss during the cooking process.

This study showed that the tylosin residues in chicken meat balls were decreased by the cooking process. This being the case, residue data from raw meat samples should not be used in calculation of consumer exposure figures.

Survival of foodborne pathogens

In this Lithuanian study **(Food Chem. and Tech. 49 50-55)** different compositions of butter and fat mixtures were contaminated with micro-organisms and stored at -70°C.

The number of micro-organisms was determined at 0, 1, 3 and 12 months of storage.

Over the 12 month period the survival rates for different bacteria were as shown in the table below. The butter with the highest fat content retained the fewest bacteria.

Bacterium	Survival (%)
Bacillus cereus	83
Staphylococcus aureus	47
Listeria monocytogenes	18

Professional Training Providers

ensuring the safe production of food and drink

The most successful companies have better trained staff and the safest food is produced by effectively trained food handlers. It is therefore important that any company establishes a positive training policy and a practical training programme. For those seeking help from external trainers, these specialists can help you to improve your company's performance.

Food safety management

Gehlkopf Conseil

343 Chemin des Sapeyses,
01480 Fareins,
France
Tel: +33 4 37 55 42 64
Email: marc.gehlkopf@wanadoo.fr
Web: www.altego.fr

Approved training provider by BRC London, Gehlkopf Conseil provides a large range of training, audit and consultancy, focused on food safety for manufacturers, packers, transport and dispatch.

Food safety & HACCP

Verner Wheelock

4 Stable Courtyard,
Broughton Hall Business Park,
Skipton
BD23 3AE, UK
Tel: +44 1756 700802
Email: office@vwa.co.uk
Web: www.vwa.co.uk

Recognised HACCP and food safety courses: specialising in Level 3 and 4 supervisory/management training. Internal auditing and BRC preparation. In house, open courses and online.

Quality, safety and BRC

Kiwa/PAI

The Inspire,
Hornbeam Park West,
Harrogate
HG2 8PA, UK
Tel: +44 1423 878878
Fax: +44 1423 878870
Email: lesley.hemson@kiwa.co.uk
Web: www.kiwa.co.uk

Providing a wide range of BRC approved training courses, bespoke courses for Internal Auditing, Food Safety, Threat and Vulnerability and CIEH Food Safety and HACCP certified courses.

To find out how to be listed in this feature please contact Claire Fussey on

Tel: +44 1377 241724

or Email: claire@positiveaction.co.uk

Cross out contamination

With safety regulations and global demand for food on the rise, optical and sensor-based sorting has become a necessity rather than a luxury for many producers who have previously relied upon manual sorting and inspection.

As a leading sorting systems manufacturer, Tomra see cross-contamination as an increasingly vital aspect of food safety. The reputational and financial impact of a product recall can be devastating for a company but sorting technology can be used to effectively manage cross-contamination issues.

Tomra Sorting Food's machines use a variety of sensors which go far beyond the common use of colour cameras.

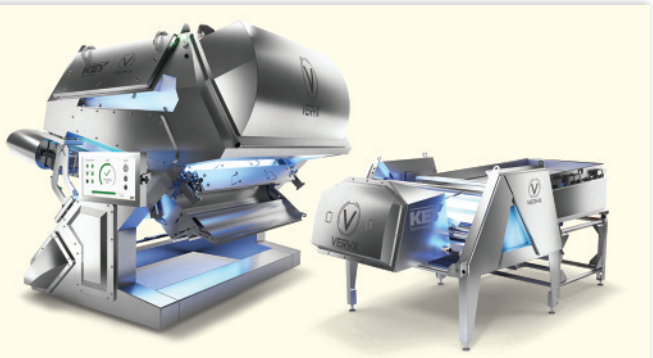
Near Infra-Red (NIR) spectroscopy enables an analysis of the molecular structure of a product, whilst X-rays, fluorescent lighting and lasers measure the elemental composition of objects.

As well as its colour and shape, an object's surface structure and biological fingerprint can be effectively analysed.

An important reason for the identification and removal of contaminants is to reduce the accidental spread of allergens.

This is particularly important since the societal impact of causing an allergic reaction in an unsuspecting member of the public can have substantial repercussions, not only financially and legally, but also in terms of brand reputation.

tomra.com



Key Technology's all-new Veryx digital sorters, a family of belt-fed and chute-fed sorters, offer high performance capabilities and share a common user interface. With unprecedented all-sided surface inspection, multi-sensor Pixel Fusion and the highest resolution cameras and laser sensors available on a digital sorter, they achieve new levels of detection and discrimination of foreign material and product defects. Advanced auto-learn, self-adjusting capabilities and recipe-driven operation will offer extreme ease-of-use and an intuitive user experience to improve product quality and maximise yields.

key.net

Plug-and-play, on-board software

DeltaTrak, a leading innovator of cold chain management, food safety and environmental monitoring solutions, has released its new FlashLink USB PDF Reusable Data Loggers.

This new line of reusable loggers are cost effective solutions for accurately monitoring and recording temperature conditions in cold storage warehouses, walk-in coolers, freezers, processing, packing and staging areas.

They provide documentation required for HACCP, FDA, FSMA (Food Safety Modernization Act) and other regulatory compliance.

Four models are available – an internal sensor, an external sharp probe, an external blunt probe, and an external blunt probe that measures down to -80°C.

These reusable electronic temperature loggers contain on-board software that generates PDF reports with temperature graphs, tables, summary statistics, and alarm information. The logger serial number is embedded in each report for complete traceability, to ensure the data is linked to the specific area it was monitoring.

The initial set up of FlashLink USB PDF Reusable Data Loggers is done with FlashPDF Program Manager software, allowing users to configure parameters such as sample rate, start time, delay start, alarm delay, upper and lower alarm limits.

Data is downloaded with the on board software and does not require FlashPDF Program Manager.

"The plug-and-play feature allows personnel on site to have quick access to temperature history reports without needing to use any software or special reading device, and without involvement of their corporate IT department," Frederick Wu, the President and CEO of DeltaTrak, told International Food Hygiene.

Information from the reports are used to make critical decisions for improving processes and cold chain logistics by identifying trends and patterns of temperature abuse.

These solutions help customers ensure product quality, integrity and safety.

deltatrak.com

Ishida's East Africa appointment

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

A reception was held in Kenya hosted by the British High Commission to celebrate Ishida Europe's commitment to the East African food market.

Based in Nairobi, Kenya, Allwin Packaging International was established in 2005 and is today the largest supplier of packaging machines in East and Central Africa, with comprehensive after-sales service and support for all installed equipment. The partnership with Ishida enables Allwin to offer Ishida's extensive range of market-leading multihead weighers and checkweighers for a wide variety of food markets, and the company will also be able to supply Ishida's specialist machines for specific applications where there is a customer requirement.

Allwin anticipates particular demand for Ishida equipment in markets such as potato chips, plantain chips, nuts, seeds, cereals, rice, pules, pasta and sugar.

In addition, the company will be exploring opportunities in the prepacked fresh produce, meat and poultry markets, fast growing industries for retail packaging in many emerging markets

ishida.com

BRC expands its presence in India

BRC Global Standards has signed up to the UK India Business Council Launchpad scheme and through them have appointed Benz Thomas to drive the expansion of the Indian market.

Based in Delhi/NCR region Benz will build on this growing market for BRC Global Standards working with local retailers, manufacturers and other stakeholders.

brcglobalstandards.com

Measuring swab performance

There are many factors affecting the recovery of bacteria from environmental surfaces that have a significant impact on detection and method validation. Most researchers measure what has been collected on the swab; however an alternative approach is to measure what is left behind on a surface.

The 'swab and rinse' method for measuring environmental contamination has remained relatively unchanged since 1917.

As discussed in previous issues, there are a large number of variables that affect swab methods giving low recovery and detection rates of 1-25%. Enumeration is therefore very imprecise so as to be virtually meaningless, particularly at low contamination levels.

Integral to the overall recovery of contamination is the release of bacteria from the swab so as to become available to the final detection method. Bacteria will bind to the material of the swab bud (>50%) and not be released although some modern materials may have a lower retention rate. The greater the perturbation of the swab in the rinse solution, the more contamination is liberated from the swab material but it is rarely 100%.

Methods for environmental pathogens frequently use sponge swabs where the release of contamination from the swab itself is of less importance provided that the whole swab and wetting solution are part of the overall test procedure.

Method validation studies for pathogens of surfaces usually require inocula to be dried on to surfaces, however this causes a large loss of viability (typically 4-6 logs). Consequently, the actual residual inoculum is not known (or no attempt is made to measure it because it is too difficult), and factorial design is used to compare detection methods in a presence/absence test format.
A model system was designed to assess and differentiate swab sample recovery from the overall detection methods by measuring the contamination on the foil surface before and after swabbing. An inoculum dried on to aluminium foil was used as the surface material and two surface test methods were compared.

MicroSnap Surface Express (MSX) is designed to swab large areas (up to 12" x 12") and to retain the sample on the swab for subsequent enrichment and detection of the entire sample. MSX was compared to contact plates.

The table below shows the results of five replicate tests for each method compared with the control (no swabbing) and conducted several times over a nine day period, and demonstrates the efficacy of the MSX device.

Swabbing a large surface area requires a swab bud that is pre-moistened with sufficient swab wetting agent to cover the desired surface area to collect a representative sample, and is convenient to use. This does not necessarily mean it has to be a large foam swab with associated volumes of liquid.

A high swab capture and recovery rate together with 100% detection on the swab with a rapid end point detection method is a major step forward for microbial environmental measurement.

	Sample recovery rate (%)				
	Day 1	Day 2	Day 6	Day 8	Day 9
Control	100	100	100	100	100
Contact plates	51	61	73	88	85
MSX	85	99	84	92	91

internationalnews

Extending food shelf life

We all want longer shelf life, tastier results, smarter packaging and better products and with several billions pounds of food rotting every year in the UK alone, extending shelf life offers huge potential.

No matter if the solution is MAP packaging, individually designed designer materials or temperature control, the root problem is always the same – the (vapour) permeability of the container.

Versaperm's new VI vapour permeability meters can show you just how well your packaging, and the materials they are made from are performing for you.

They can measure the vapour permeability with respect to gases, including water vapour, oxygen, nitrogen, argon CO_2 – along with every other gas or gas combination you can use. Not just for the materials themselves, but for the finished, packaged, product. These are virtually never the same and are not usually even close.

Measuring the permeability traditionally took weeks for a single sample, but with the Versaperm equipment it can be achieved in as little as 30 minutes for many films and vapours.

Results are usually accurate to better than one part per million, with some samples accuracy can be measured in parts per billion (PPB).

Versaperm's new and extended sensor range can be used to measure vapour permeability with almost any common gas or vapour.

The instruments have a highly automated computerised control and can optionally handle several films or finished products at a time.

A huge range of films are used to wrap up food and keep it fresh. Getting it right dramatically extends the food's shelf life and boosts its freshness. Getting it wrong can do exactly the opposite.

versaperm.com

Completely detectable lanyards

The food industry makes widespread use of lanyards because they allow equipment to be always on-hand for use. The tools are more securely held in place and less likely to be lost into the processing machinery.

A lanyard attachment point is frequently specified by customers buying Detectamet detectable pens and other tools such as calculators, stop watches and cooking timers. They are sometimes used on items like safety knives to hang them close to the place of use.

Detectamet's new completely detectable lanyards are metal and X-ray detectable like most of their products.

This provides food manufacturers with the reassurance that should the equipment be lost and broken in production then the plastic pieces will be identified in the food products and rejected. So, if the new Detectamet lanyard is mislaid or lost, the entire product is detectable.

James Chrismas MD at Detectamet explained "Our customers raised concerns that whilst fabric lanyards met some of their security needs they needed the reassurance that the whole of the material from which it was made could be found by their in-line scanning equipment."

The new completely detectable lanyard is blue for food visibility and is 41cm long. This means that the user can reach the clip board or desk surface and write comfortably. They are supplied in packs of 10.

"We have succeeded in producing a completely detectable strap section material using a strong detectable material that has a soft feel and elasticity for comfortable wear," James explained.

"This ensures that food workers are encouraged to keep their pens and equipment under control. The use of Detectamet's new all detectable lanyards adds an extra layer of assurance," James concluded.

detectamet.com

Advanced X-ray range

Ishida Europe has launched a new range of X-ray inspection systems to help food manufacturers and processors comply with global safety standards and meet the demands of quality and safety conscious retailers.

Their new X-ray (IX) series raises the bar in performance and usability with a global range that meets all local territory standards. Offering customers easy maintenance and stress-free operation, the range includes a robust fail safe system that prevents a contaminated product reaching the consumer in the event of a power outage or breakdown, helping to minimise the potential for costly recalls.

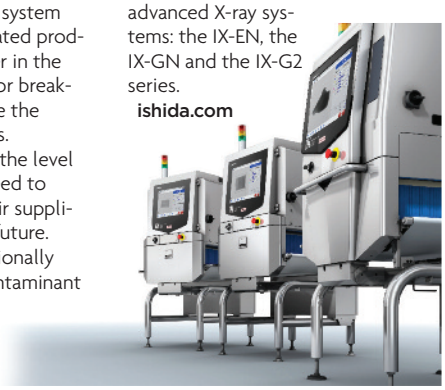
These machines deliver the level of certainty businesses need to meet the demands of their suppliers, both now and in the future.

All models offer exceptionally sensitive foreign body contaminant detection and additional benefits such as the ability to identify damaged and missing products or components, helping customers to achieve a rapid return on investment. Quick commercial returns are also achieved by ensuring that high quality product leaves the factory gate, safeguarding reputations while securing existing business and gaining new contracts through competitive advantage.

Ishida are confident that the IX series offers the most comprehensive range of high-performance X-ray products on the market.

The new range consists of three advanced X-ray systems: the IX-EN, the IX-GN and the IX-G2 series.

ishida.com



Complete line solutions

Sidel, a leading global provider of PET solutions for liquid packaging, is highlighting the importance of complete line solutions in delivering optimum performance for beverage producers, along with the lowest total cost of ownership (TCO).

"As a result of the ever-changing market, beverage producers are generally now taking a more holistic approach to the installation of new bottling lines," Clive Smith, Executive Vice President of Sales and Marketing at Sidel, told International Food Hygiene.

"Here at Sidel, we genuinely believe it is the key to maintaining optimum performance and attaining the most cost-effective operational life over the longer term."

sidel.com

Food grade oven chain lubricant

Total performance lubricant manufacturer, Bel-Ray, have released their No-Tox Food Grade Oven Chain Lubricant that is suitable for use on chains, conveyors and bearings found in high temperature commercial ovens.

It is formulated to deliver and deposit advanced food grade solid lubricants to the chain, side bars, sprockets, bushing and pins of commercial ovens.

The extreme pressure and anti-wear properties allow it to deposit and deliver suspended food grade white-graphite after prolonged exposure to high temperatures, reducing energy consumption and friction.

Due to its synthetic ester oil base, the lubricant leaves no sludge or carbon residue behind when thermally decomposed.

No-Tox Food Grade Oven Chain Lubricant effectively lubricates up to 900°C (1652°F). The lubricant also effectively inhibits growth of certain bacteria, yeast and mould in the lubricant.

The product is Kosher and Pareve approved, Halal certified and meets NSF H1 and FDA requirements for products that might have incidental contact with food as defined under Title 21 CFR, 178.3570.

belray.com

Toxigenic E. coli

Dr Roy Betts, Head of Microbiology, Campden BRI, UK
roy.betts@campdenbri.co.uk

The E. coli species consists of a diverse range of strains. While E. coli do originate in the animal gut, they are widely distributed within nature and will be found in the soil and other environmental sources so their presence in a food is not necessarily indicative of faecal contamination. The presence of low levels of general E. coli in many fresh foods does occur and is not usually harmful; indeed their presence at low levels in some foods is recognised and allowed within European legislation. We know that there are particular strains of E. coli that are highly pathogenic. The first strains of this type were isolated from hospitalised patients in the early 1990s and were identified as E. coli O157:H7. This serogroup of E. coli was originally linked to minced beef products, particularly improperly cooked burgers. A number of large outbreaks occurred and many of those affected had to be hospitalised and a number died.

This led to much research on the organism and a number of recommendations of how to cook minced beef products which, unlike whole muscle cuts of beef, have large numbers of bacteria distributed throughout the whole product, and need a more thorough cook to kill these deeply embedded bacteria. As research continued, outbreaks of O157:H7 were recognised from non-meat products including unprocessed apple juice (in the USA referred to as apple cider), raw or improperly pasteurised milk (or pasteurised milk that had become cross contaminated with raw milk due to poor dairy hygiene), fresh produce (leafy greens, spinach etc) and sprouted seeds (bean sprouts). The link in all of these was that at some point the product had become contaminated from the environment, and was then consumed without thorough cooking. Worse was to come, as similar severe outbreaks of illness were recognised that were caused by E. coli that did not belong to the O157 serogroup. The common factor was that all of the E. coli concerned contained the genetic information to produce one of two toxins and were named accordingly Verocytotoxin producing E. coli (VTEC) or Shigatoxin producing E. coli (STEC). In both the USA and Europe, legislation was produced that required testing and the absence of these organisms in certain types of food. Serogroups O26, O111, O121, O103, O145, O45 and O104 were all considered potent food hazards. The range of foods concerned has widened over time, and we have a situation at present where a very large amount of unprocessed flour is being recalled in the USA due to its association with an outbreak of E. coli O121.

Testing for this group of E. coli requires specialist skills and facilities. In Europe toxigenic E. coli are classed as Hazard Group 3 pathogens and can only be handled under enhanced containment, which few laboratories have. Testing also requires knowledge in the use and interpretation of polymerase chain reaction methods. We have to understand that they cause a potent illness and have a low infective dose. We must take care to cook foods properly and prevent any cross contamination between cooked and raw products. Fresh produce has to be produced with a view to preventing contamination with this group, by controlling and managing growth, irrigation, harvesting and transport conditions.

The new hygienic thermowells for temperature probes are the ideal addition to the Jumo product portfolio for measuring points in the hygienically sensitive food industry. Their flexible system makes them suitable for all temperature measurement tasks. The function of hygienic thermowells is to safely close sensitive processes in the food industry. At the same time, the processes must no longer be interrupted or opened for maintenance work and calibrations. As a result, the time and costs spent in assembling/disassembling as well as running plant cleaning cycles can be reduced.

jumo.net

Quality is the driving force

180 Degrees is a rapidly growing Auckland company producing a range of baked biscuits, snacks and crackers. With export markets really taking off, the company have begun a major investment programme to expand production capacity and improve the efficiency of their plant.

Quality is the big driver behind their investment programme, so it was a priority for company director Nigel Cranston to make sure 180 Degrees had the best available metal detection technology in place.

After looking at all the options they selected a Sesotec Varicon+ metal detector supplied by Reynolds Group, featuring a C-SCAN multi-frequency detector tunnel.

The Varicon+ metal detection system detects all metal contaminants (ferrous, non-ferrous and stainless steel) – even when enclosed in the product. This provided the best possible level of detection for all metal types across the full range of products, and extremely easy set-up and operation.

"We have worked with Reynolds Group for our coding requirements for many years, and knowing that our new quality control systems are supported by such a great partner is reassuring," Nigel told International Food Hygiene.

sesotec.com

Sorbent technology retains freshness

Pouches are the fastest-growing segment of flexible packaging and meeting consumer expectations for freshness within this format is an important factor for market success.

Multisorb's sorbent technology offers food processors an opportunity to help deliver a fresher product with a longer shelf life benefitting both the consumer and processer. For example, their JerkyFresh oxygen absorbers are a solution specifically designed to retain the quality and increase longevity of jerky products, packaged within a pouch format.

When used with proper barrier packaging and combined with packaging methods such as gas flushing, JerkyFresh reduces the oxygen level within the product packaging to less than 0.01% and then maintains this level throughout the intended shelf life of the product, helping to inhibit the growth of moulds and aerobic spoilage organisms.

Manufactured in the US in a cGMP compliant facility certified to GFSI FSSC 22000, Multisorb's oxygen absorbers meet the highest standards for food safety in the industry.

multisorb.com

Compostable packaging film

Organic food delivery company Abel & Cole has improved the shelf life of its produce with an ingenious Finnish invention: easily processable and transparent biodegradable packaging film.

Abel & Cole is the first company in the UK to use a new kind of compostable packaging film developed by Finnish company Plastiroll.

The breathable film has been found to keep fruit and vegetables fresh for longer by enabling them to retain their moisture, while preventing condensation inside the package.

plastiroll.fi

A major force in the bakery sector

GEA have recently successfully concluded the acquisition of Imaforni in Verona, Italy, a leading supplier of advanced lines for crackers and soft and hard biscuits.

This complements its acquisition of Comas from Torrebelvicino, near Venice last year, a company supplying top level equipment and complete production lines for cakes, pies, cookies, layer cakes, pastry, pizza and selected bread applications.

These two acquisitions complete GEA's entry into the bakery market allowing the company to provide turnkey systems for a wide range of products, from mixing to packaging by using proprietary technology and full line integration.

gea.com

Diary

2016

IAFP USA
31st July-3rd August
St. Louis, Minnesota, USA
www.foodprotection.org/annualmeeting

International FoodTec
2-4th August
Curitiba, Brazil
www.foodtecbrasil.com

Food ingredients Asia
21-23rd September
Jakarta, Indonesia
www.figlobal.com

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

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

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

CIBUSTEC
25-28th October
Parma, Italy
www.cibustec.it

MeatEx
5-8th November
Tehran, Iran
www.iranmeatex.com

Pack Expo International
6-9th November
Chicago, USA
www.packexpointernational.com

Gulfood Manufacturing
7-9th November
Dubai, UAE
www.gulfoodmanufacturing.com

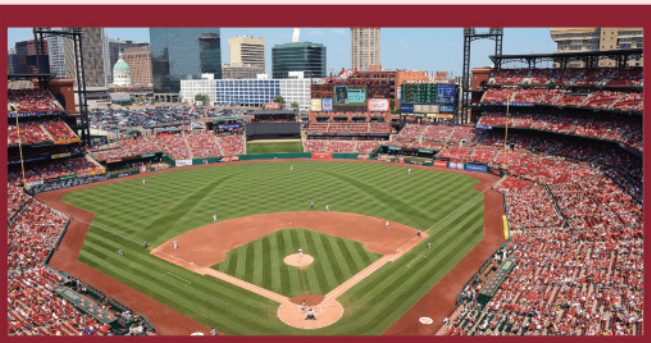
Interfood and Drink
9-12th November
Sofia, Bulgaria
www.food-exhibitions.bg/en/interfood-and-drink

IAFP2016

St. Louis
MISSOURI
Jul 31 - Aug 3

JOIN US AT IAFP 2016!

The Leading Food Safety Conference



ARCHWAY TO EXCELLENCE

International Association for Food Protection®
6200 Aurora Avenue, Suite 200W |
Des Moines, Iowa 50322-2864, USA
+1 800.369.6337 | +1 515.276.3344 | Fax +1 515.276.8655

Information available at
www.foodprotection.org

The most important route to the entire Southeast Asian food and beverage ingredients industry

Pre-register for special benefits at www.fiasia.com

- A 3-day free entrance ticket
- A free show catalogue
- Free access to all onsite feature
- Free access to the online Business Matching Service

Fi Food ingredients Asia

Ni Natural ingredients

21-23 September 2016

JI Expo, Jakarta, Indonesia

Opening hours:	21-22 September	10:00 – 18:00
	23 September	10:00 – **17:00**

Meet **650+** **local, regional and international F&B ingredients suppliers** from **40+** countries.

Enhance your insight and idea with **International conference; Food Innovation: ASEAN Economic Community (AEC) Challenges.**

Build new network and business contacts with expected 15,000+ F&B industry professionals from ASEAN countries and over the world.

Gain knowledge from experts by attending conference and over **60 exhibitor seminars** focusing on food and beverage trends in ASEAN.

Meet World Top F&B Ingredients Companies

BASF The Chemical Company · KERRY · Indesso Unlocking Nature · OGAWA Flavors & Fragrances · glanbia NUTRITIONALS · TATE & LYLE

Special Highlights!

- Business Matching Service
- Innovation Zone
- Food product development competition
- Guided ingredients tour and Discovery tour

For more information:
+62 21 2930 5959 **www.fiasia.com**

Organised by: UBM

Supported by: GAPMMI · Patpi · SEAFAST CENTER · Department of Food Science & Technology IPB · FESTA · IUFoST · Kasetsart University

Linked in Fi Global · Fi Global Fi Asia · YouTube Fi Global · twitter @fi_global