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NON FOOD ITEMS

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DEADLY DUST EXPLOSION

A salutary lesson in GMP
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Food Safe Facilities

Throwing some light on the subject

What are the requirements for lighting in a 'food safe facility'?

The Food Standards Code requires food premises to have a lighting system that provides sufficient natural or artificial light for the activities conducted on site.

Local Councils' regulations for new premises or new fit-outs, require compliance to the Australian Standard AS 4674-2004 'Design, construction and fit-out of food premises'. This standard requires that

1. All food premises have natural or artificial lighting in accordance with the Building Code of Australia, and comply with the requirements of AS 1680.
2. Dining and drinking areas may have subdued lighting, however lighting in accordance with AS 1680 is required for cleaning and inspection operations.
3. Light fittings shall be cleanable and designed to prevent contamination of food should the globe or tube shatter.

The Australian Standard AS 1680 requires different light levels for different areas of a food facility. For example, plant rooms, locker rooms, cleaners' rooms, corridors and storage areas have lower requirements, while industrial processing areas, offices and laboratories are required to have more light.



Philips' MASTER TL-D Secura food safe shatterproof tube. Note the two blue rings indicating the food safety attributes.

HACCP-based food safety standards, including the systems of HACCP Australia, require lighting to be adequate to ensure safe operation of equipment and to assist with cleaning; lights to be operative and clean; and light fittings to be enclosed in processing areas, so that glass cannot fall into processing area at times of breakage.

Adequate lighting is important to identify areas of a food facility that need cleaning and to inspect areas that have been cleaned, including food preparation surfaces, equipment and utensils. Adequate lighting is also essential for inspection of food materials. It helps in the monitoring of employee hygiene and food handling procedures. Appropriate lighting prevents errors and accidents in batching operations, and the operation of machinery. Poor lighting can cause eye-strain for workers, while too much light can produce glare and discomfort.

Lighting is important to enhance the appearance of food when displayed in a retail business. The ability of a light to show colours correctly is known as colour rendering and is an important consideration in a retail environment.

Adequate lighting is important to identify areas of a food facility that need cleaning and to inspect areas that have been cleaned.

Lighting also has the potential to change the colour of products when they are on display. UV light can play a critical role in discolouration of meat, since it encourages metmyoglobin formation. Metmyoglobin is brown and meat consumers relate the presence of brown colour to the loss of freshness. Elimination of UV radiation by using a low-UV lamp can significantly extend the display life of meat. Low UV emission lamps are available, including the **Philips MASTER TL-D Secura range**. These lamps are also shatterproof and thereby eliminate a significant physical contamination risk.

Inadequate lighting is not uncommon in food facilities. Research conducted in the United States in 2004 found that

79% of food service operations failed to meet the lighting requirements of the Food and Drug Administration (FDA) for walk-in coolers, and 47% of restaurants did not meet the requirements at their food preparation counters. Australian food safety auditors agree that it is common to observe inadequate and unsafe lighting during inspections of food facilities. This is particularly the case in cool rooms and warehouses. Inadequate lighting in a cool room generates a non-conformance during an audit, because it is difficult to verify cleaning and sanitation operations in a poorly lit food holding area.

Another common source of non-conformances during a food safety audit is the light fittings themselves. Light fittings must be enclosed, or shatterproof lamps must be used. Shatterproof fluorescent tubes can be identified by two coloured bands (usually blue or black) near the end. Light fittings and covers must be kept clean.

Light fittings are more properly known as luminaires. A luminaire is a lighting fixture complete with the light source or lamp. The light fixture is the electrical device used to create illumination. Lamps are the removable portion of a luminaire which converts electrical energy to light. When choosing lamps, characteristics to consider are efficacy (lumens per watt), lamp life and colour rendering index. Cost of replacement lamps is also an important factor.

Three types of lamps are used in food businesses:

1. Incandescent lamps, or common light globes have good colour rendering but low efficiency. They have recently been phased out in Australia being replaced by compact fluorescents.
2. Fluorescent lamps have good colour rendering and high efficiency, but are not suitable for rooms with high ceilings.
3. High intensity discharge lamps, which include mercury vapour metal halide and high pressure sodium lamps. Except for metal halide they generally have high efficiency but poor colour rendering. They are suitable for use in areas where lighting is on for long periods and ceilings are high.



Thorn's compact fluorescent lamp luminaires is angled to resist dust accumulation and is easy to clean.

Luminaires are available in many different designs. In terms of food safety, it is important that luminaires are designed to be easily cleanable, and with no 'dead spots' which could trap dust and dirt. In some facilities, they may be required to be resistant

to atmospheres laden with grease, steam or dust. Appropriate materials include stainless steel, acrylic, polycarbonate and food grade rubber gaskets. In areas which are cleaned with high pressure water or steam, choose luminaires with the appropriate IP rating. Ease of access to lamps is also a consideration. Clips, screws, washers and gaskets can all be potential sources of contamination within a processing area, so luminaires with appropriate fastenings are highly recommended.

Thorn has recently released a range of specialist fluorescent 'proof' luminaires, known as **X-Force**, which are specifically designed to resist impact, corrosion, cold, heat and water ingress.



Thorn's X-Force range - food safe and fit for purpose. Designed to withstand difficult environments.

When designing lighting systems, a balance is sought between the amount of functional light required and the energy consumed. Energy efficiency will save money, whereas over-illumination will add unnecessary costs. Having said that, lighting accounts for only two to three percent of energy consumption in an average food facility, while it accounts for between twenty and fifty percent of energy consumption in homes and offices. When it comes to food safety and employee safety and comfort, it does not pay to be cheap with your lighting.

Lighting food safety checklist:

- Is lighting adequate for all tasks?
- Does your cool room lighting need a boost?
- Are your luminaires cleanable and made of appropriate materials?
- Are your light fixtures covered, or are shatterproof tubes used to prevent glass contamination?
- Could your luminaires be a source of other physical contamination, from loose clips or screws?
- Are the lamps easy to access when required?
- Are your lighting fixtures included in your regular cleaning and maintenance schedules? ■

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Lighting people and places





HACCP INTERNATIONAL'S UK OFFICE TO SERVICE EUROPE

Welcome to HACCP Europe's
Director, Richard Mallett

HACCP International, the organisation that is represented here by HACCP Australia, has opened a regional office in the UK. Richard Mallett of MQM Consulting will take up the role of Regional Director for 'HACCP Europe', combining HACCP



Richard Mallett

International's specialist services and certification programme with MQM's current food safety and training operations.

This office based in the South of England and close to London allows HACCP International to offer a full suite of services to the European market as well as supporting international companies which have business in the region. Richard and his staff

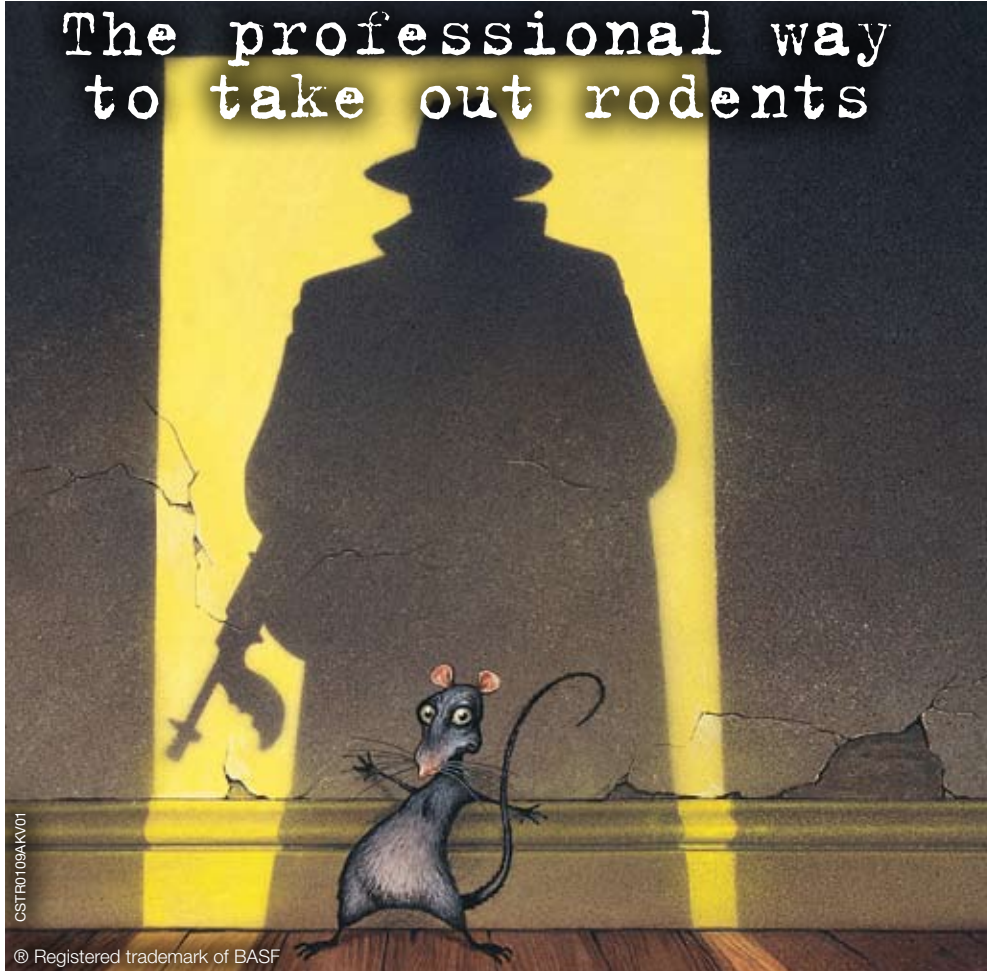
will work closely with our offices in Sydney and are available to support our Australian customers with any food safety matters.

Richard Mallett is a Pure Microbiology graduate from the University of Leeds and has worked for a number of well known companies in the UK including Rank Hovis McDougall and BioMerieux UK. He is an accredited trainer, a BRC auditor and has considerable food technology and HACCP programme development experience. Richard sits on a number of influential technical committees in the UK and is very familiar with the food safety requirements, processes and standards in the European industry sector. ■■

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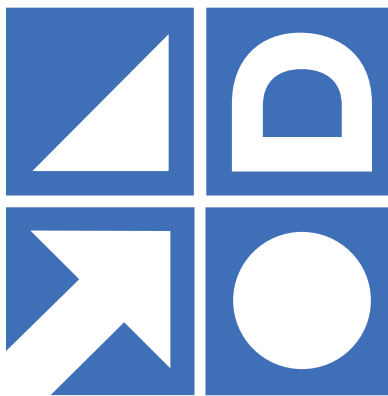


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CCP FOOD SAFETY



A simplified Food Safety Programme for smaller retail Operations

Common criticisms of HACCP based food safety programmes over the years have been the expense and complexity of developing and implementing such a programme in smaller operations. Facilities such as Cafés and small restaurants undeniably have a need for an appropriate food safety programme but the commitment required in time and cost are often prohibitive.

Some government bodies have responded to this need by developing template programmes. An excellent example of which is that developed by the Victorian Government. Of course, with such a programme, implementation still falls to the operator. This can be onerous and confusing to some leading to neglect and risk.

With these difficulties in mind, HACCP Australia has developed a new system which delivers a low cost, effective

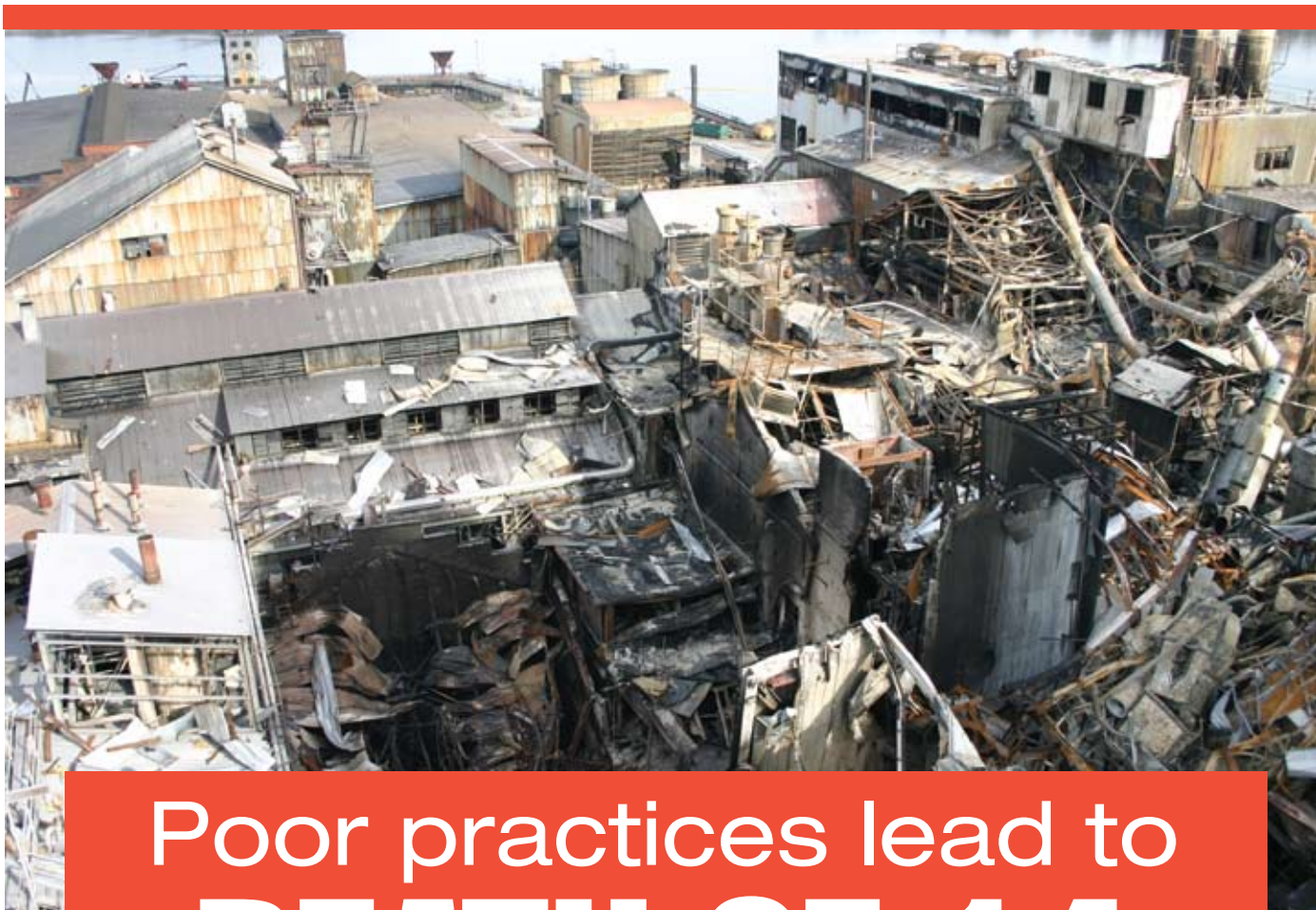
and easy to use Food Safety Programme. The Programme is called 'CCP Food Safety'. As the name suggests, the system is based around the Critical Control Point (CCP) part of a HACCP programme ...really, the pointy end of food safety management.

The manual is designed as a simple yet handy tool for reference and the monitoring forms are intuitive and easy to use. More attractive still, the programme includes a series of on-site implementation visits from our qualified technologists. At the completion of the programme, and subject to the successful outcome of a compliance audit, the client is awarded certification including window decals and display certificates.

The programme has been trialed in Queensland and NSW in the QSR, restaurant and café sectors with outstanding results. Amed, the owner of Enfes Kababs in the busy Darling Harbour precinct in Sydney said "we needed a programme to demonstrate and manage the safety of our food – The CCP Food Safety Programme delivers this 100%" Martin Stone, Director of HACCP Australia says "this sector has been looking for such a programme for some years now and with 'name and shame' and on-the-spot fine concepts on the regulators agenda, the imperative for this type of programme is building. Not only does this programme assist clients in meeting the food standards requirements for temperature controls, the assistance given on site during the implementation phase is a great help to the operator", Mr Stone adds. "And, at a cost of about a tenth of a full HACCP programme, CCP Food Safety delivers excellent value to a market sector where every dollar counts." Not only will this programme deliver an appropriate level of food safety, due diligence and therefore peace of mind to the operators, but, once the audit is passed, the system provides for a strong point of differentiation to customers in a food safety conscious market.

For more information about the CCP Food Safety Programme, call the Sydney office of HACCP Australia on 02 9956 6911. ■





Poor practices lead to **DEATH OF 14** and injury to further 36

Inadequate design and poorly managed dust collection causes tragedy in US sugar factory. A lesson to be learnt.

A final draft report released in September by the US Chemical Safety Board gives an insight into the catastrophic dangers to which poor design, housekeeping and manufacturing practices can lead.

CSB investigators said the, 2008, explosion at the Imperial Sugar refinery in Port Wentworth, Georgia USA, resulted from ongoing releases of sugar from inadequately designed and maintained dust collection equipment, conveyors, and sugar handling equipment. Inadequate housekeeping practices allowed highly combustible sugar dust and granulated sugar to build up throughout the refinery's packing buildings, CSB investigators concluded.

The first explosion – known as a “primary event” – likely occurred inside a sugar conveyor located beneath two large sugar storage silos. The conveyor had recently been enclosed with steel panels creating a confined, unventilated space where sugar dust could accumulate to an explosive concentration. Sugar dust inside the enclosed conveyor was likely ignited by an overheated bearing, causing an explosion that traveled

into the adjacent packing buildings, dislodging sugar dust accumulations and spilled sugar located on equipment, floors, and other horizontal surfaces. The result was a powerful cascade of secondary dust explosions that fatally injured 14 workers and injured 36 others, many with life-threatening burns. The refinery's packing buildings were largely destroyed by the blasts and ensuing fires.

The final report and proposed safety recommendations will be considered for approval by the CSB board members at a public meeting tonight in Savannah. The meeting begins at 6:30 p.m. at the Hilton Savannah Desoto hotel, located at 15 East Liberty Street. The meeting will include a public comment period. The CSB also today released a four-minute computer animation depicting the sequence of events that led to the accident. The 3-D animation will be included in a CSB Safety Video on the Imperial disaster that will be issued shortly after the final report is approved and will be available on the agency website, www.CSB.gov.

“Dust explosions can be among the deadliest of industrial hazards. These explosions are readily prevented through appropriate equipment design and maintenance and rigorous dust-cleaning programs.”

CSB Investigation Supervisor John Vorderbrueggen, P.E., who led the 19-month investigation, said, “Imperial’s management as well as the managers at the Port Wentworth refinery did not take effective actions over many years to control dust explosion hazards – even as smaller fires and explosions continued to occur at their plants and other sugar facilities around the country.”

The CSB report said that the sugar industry was familiar with dust explosion hazards at least as far back as 1925. Internal correspondence dating from 1967 showed that Port Wentworth refinery managers were seriously concerned about the possibility of a sugar dust explosion that could “travel from one area to another, wrecking large sections of a plant.”



Precursor events included a 1998 explosion at Imperial’s plant in Sugar Land, Texas; an explosion at the Domino Sugar plant in Baltimore in November 2007; and two sugar dust explosions in the 1960’s that killed a total of ten workers. However, Imperial management did not correct the underlying causes of the sugar dust problem at the Port Wentworth facility, where workers testified that spilled sugar was knee-deep in places on the floor, and sugar dust had coated equipment and other elevated surfaces.

CSB Chairman John Bresland said, “Dust explosions can be among the deadliest of industrial hazards, particularly inside heavily occupied buildings. But these explosions are readily prevented through appropriate equipment design and maintenance and rigorous dust-cleaning programs. I call upon the sugar industry and other industries to be alert to this serious danger.”

The report said the company had not conducted evacuation drills for its employees and that the explosions and fires disabled most of the emergency lighting, making it difficult for workers to escape from the labyrinth of explosion-damaged buildings as the fires continued to spread.

The final report proposed a series of safety recommendations for Board consideration. Imperial Sugar was urged to comply with National Fire Protection Association (NFPA) recommended practices for preventing dust fires and explosions, develop dust training and housekeeping programs, and improve its evacuation procedures. The report also called on industry groups AIB International and the American Bakers Association to develop combustible dust training and auditing materials. Imperial’s insurer, Zurich Services, and an insurance industry trade association should improve their insurance audit procedures for dust hazards and share their dust hazard training materials with clients, investigators concluded.

A 2006 CSB study identified 281 combustible dust fires and explosions between 1980 and 2005 that killed 119 workers and injured 718, and extensively damaged industrial facilities. The CSB recommended in November 2006 to the U.S. Occupational Safety and Health Administration (OSHA) to develop a comprehensive regulatory standard for combustible dust, based on existing NFPA consensus standards, and improve requirements for dust hazard communication to workers. In April 2009, OSHA announced it would commence the development of a standard. ■

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FOOD SAFETY

for non-food is not a contradiction

When thinking of food safety, we usually consider the food itself, the ingredients, processes and the handling. But there are other risks that food handlers in high risk environments have to manage - and they come from non-food items.

Food safety is often considered to be a function of ingredients, processing and packaging. Whilst this is largely true, the impact of non-food items used to prepare and manufacture food is often overlooked with potentially serious consequences. Inappropriate or poorly-designed, non-food items, as varied as gloves, cleaning chemicals, bearings or hand dryers, have also been responsible for numerous contaminations of food.

There are many non-food items that are used in the process – just imagine what is used in a simple domestic kitchen to prepare and clean up after one meal. Without considering the kitchen furniture, one will typically have employed, knives, utensils, chopping boards, cooking equipment, cloths/scrubbers, cleaning chemicals, storage containers, refrigeration, cling wrap, thermometers, packaging and that's before the walls, floors, lighting and surfaces have been considered. In an industrial food processing example, one might have to add gloves, sanitisers, pneumatics, measuring equipment, bearings, plant and equipment, labels, machinery and ancillary services such as bathroom services, hand washing and drying, pest control and other industrial services.

Too often, food safety has been compromised through the use of poorly designed equipment or badly selected materials

It soon becomes clear that there are many non-food items that play a vital role in food production and the risks that they present need to be managed.

The best food safety programmes are 'HACCP based' and incorporate excellent systems for identifying hazards and minimizing risk through the use of hazards analyses (the HA in

HACCP) and the management of Critical Control Points (the CCPs in HACCP). Such programmes are now mandatory in high risk sectors such as hospitals and care facilities. Those HACCP based programmes require the operators to manage not just the food safety processes in their own facility but also to ensure similar standards exist in the processes of their suppliers.

Typically, all food and ingredients will therefore be sourced from suppliers who themselves operate a HACCP food safety programme and that will be supported by recognised certification issued after a food safety audit to a prescribed standard, be that to Codex, ISO, SQF, BRC or other recognised bodies. However, verification of 'fitness for purpose' is less easy for non-food products, and production managers, caterers and chefs have often had to rely on their own knowledge and experience. The range of products however, as we now know, is so wide and complex that this is a difficult technical task.

Food safety certification for such 'non-food' products is now common and gives purchasers assurance as to products' suitability. Buyers know that such products have been thoroughly reviewed by food technologists to ensure their 'fitness for purpose' in an industrial application.

HACCP Australia is a firm which undertakes such product certification. Let's look at some of the major issues that they have identified as important in this process. They list:-

- Toxicity,
- Suitability
- Materials
- Design
- Ease of cleaning
- Consequences of error in application
- Methodology of use
- Food safety claims that may be made about the product

Toxicity is one of the more straight forward design criteria. Martin Stone, the technical director at HACCP Australia said, "Most items used in the industry for food contact have a low toxicity when used as directed. However, sometimes a toxicity risk is not obvious. Consider for example, a lubricant which may not have any food contact opportunity under normal use but which could contaminate food should a seal fail. In another

example, significant in-roads in this regard have been made by the compressed air industry. A firm recently reviewed by HACCP Australia, takes an excellent risk management approach to the design, production and use of compressed air in the food facility. Their designs result in fail-safe installations for compressed air that has direct food contact, meeting the requirements of the food industry and international standards such as those of the BRC".

To some extent, all things are toxic. It is the potential exposure that needs to be considered. Of course, appropriate risk management dictates that this consideration should be undertaken in a worst case scenario. If, in that 'worst case scenario', a non-food item could have a significantly toxic effect on the food stream, clearly an alternative must be employed.

Sometimes, products which are used in everyday life are found to be inconsistent with 'Good Manufacturing Practices' (GMP) in the food industry due to their design criteria. A simple example here is the snap-bladed craft knife or 'box cutter'. Whilst used extensively, these items are totally unsuitable in the food industry because one of their 'useful' design features can lead to disaster in food manufacturing.....their blades are designed to snap off. Once snapped, the blade is like a small razor blade and something to be avoided at all costs in the food stream.

The materials used in a production are vital. So often, because these items are not 'food', they are given too little consideration. For example, the material used in manufacturing a food safe glove might well make its way into a foodstuff through an accidental knife cut. That material should be easily spotted - blue is a good colour, - and if not spotted, one must be assured that



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accidental consumption will be safe. **Lanotec**, (07 3373 3700) supply **food grade lubricant** and can give Australian food companies good advice in this regard. So, colour, material, recycled content and chemical issues all have to be considered in this simple example.

Much has been written about sanitary design and numerous international standards and guidelines reflect what is considered to be appropriate design criteria providing for ease of cleaning and sanitation. Simple things like lack of thin gaps and large radius junctions between surfaces are standard on many designs for the food industry. Other considerations include ease of strip down to component parts and potential for use of CIP (Clean-in-place) systems. A recent listeria outbreak was traced to a meat slicer which was well designed except for one crucial area....a drive actuator located in the splash zone could not be removed for cleaning with any ease. In this case, the listeria was allowed to grow in this area subsequently contaminating the food and resulting in a significant product recall.

'Consequence of error' is a factor that is commonly overlooked when purchasing equipment and manufacturing aids. A simple example might be a small oil sight gage on top of a closer. Under normal use the glass gauge will give years of service with a low risk to food safety. However, should the gauge be impacted or subject to thermal shock, the glass may fracture resulting in potential contamination of the food stream.

Passive sanitation systems also require thought. Much has been done with self-sanitizing surfaces using ion technology. These advances have been adopted by a range of product manufacturers from flooring to hand washing systems.



Festo's well designed valve terminals have excellent food safety characteristics

It is also important to consider the facility where the non-food items are manufactured. In the case of packaging for example, this is a major consideration. Particularly, primary packaging items, with long term direct food contact and which are used without a decontamination step must have a similar risk profile to a food ingredient! Consider the simple plastic bottle cap. A clear risk exists here where anything which may contaminate the



General Mat Company's range of products are ideal for a food environment and have excellent O, H and S benefits too

cap at the plastics factory will directly contaminate the beverage that it is designed to protect. Plastics molding plants rarely manufacture caps for the food industry only. A range of other moulded materials may well be manufactured side by side and while food safety issues associated with these products may be non-existent, a risk management strategy consistent with those employed in the food industry becomes a necessity as soon as those caps are made for drink bottles.

It is important that labels, instructions for use, claims and other material are checked for both accuracy and content. Instructions must be easily understood and marketing claims must not be misleading. Terms such as 'anti-microbial' or 'sterilization' are often bandied about freely but these can be important words and must not be used if they are wrong or misleading. All staff who would reasonably expect to use the product must be able to easily follow the instructions for use and cleaning.

Martin Stone continues, "Many manufacturers of non-food items have been quick to respond to the requirements of the food industry. Recent evaluations of equipment by HACCP Australia has highlighted many products that incorporate excellence in the design criteria that leads to practical application by food manufacturers. We see some really well designed products coming through our evaluation process – really good gear which will last the distance and improve the risk profile for the user. Sometimes these items may cost a little more, but the benefits and risk elimination are worth a lot more. **Dyson's 'Airblade™'** hand dryer is an interesting innovation. Their filter system and drying time have overcome a problem that made hand dryers unacceptable in the past. They have solved the food safety issues as well as designing a product that has so many other benefits.

It is prudent to consider these risks carefully. There have been too many cases of contamination, recall, or production disruption where food safety has been compromised through the use of poorly designed equipment or badly selected materials which do not meet appropriate standards for the industry. Be it an item of equipment, a chemical, a consumable product or fit out material, looking for assurance as to its 'fitness for purpose' - prior to purchasing - is the first step to eliminating an what could be an easily eliminated, high risk hazard. ■

Modern technology and electronics combine to provide an effective air borne pollutant system



An introduction to BAXX cold plasma technology

BAXX is an advanced development discovered out of investigating methods of combating germ warfare by the British Ministry of Defence who had a remit to assess the risk of bacterial attack on the British Isles in the 60/70's. This in turn had been initiated by observations over a hundred years prior by Louis Pasteur who had documented that the atmosphere in high altitudes and sunny days reduced the incidence of infection and effectively killed bacteria and viruses.

The answer lay in the natural occurrence of airborne Hydroxyl Clusters. Modern technology and electronics allows the BAXX to achieve the aim of eliminating airborne pathogens by using cold plasma to strip a hydrogen atom from some of the natural water molecules (H₂O) contained in the air around us, leaving them as unbalanced hydroxyl clusters (-OH). These clusters seek and attach to airborne bacteria and virus cells and recover their missing hydrogen atom from the cells wall to return to a natural water molecule again (H₂O). In that instant, the bacteria/virus metabolism and cell wall is disrupted and the cell dies. Thus nature's way of eliminating airborne pathogens has been reproduced.

Hydroxyl clusters will also land on surfaces and kill surface contamination by the same method. These same Hydroxyl Clusters can reduce and eliminate odours as well – particularly so on odours based on ammonia compounds and waste decomposition.

The use of stripping away hydrogen atoms from airborne water molecules to form hydroxyl clusters is unique to the BAXX cold plasma technology which naturally kills all airborne pathogens including MRSA, C.Diff (Spore Form), Norovirus and Bacteria. BAXX introduces several technological breakthroughs and advantages –

- It doesn't require any consumables other than electricity. No filters to clean, no chemicals or liquids to replenish, no service required. Install it and leave it to do its work. Electrical consumption is a mere 120watts – the equivalent of two 60watt light-globes.
- The case of the Baxx is in 316 stainless steel which makes it

ideal for food manufacturing plants, health care facilities, retail outlets, and any other moist environments where a germ free environment is paramount.

- The only moving part is a resin-packed motor attached to a fan. These type motors can cope with dry and dusty conditions to wet and clammy environments and so the Baxx can be employed in steamy kitchens or cold wet chillers just as easily as dry powder mixing rooms and anything inbetween.

Such is the confidence in the construction and reliability of the Baxx unit that it is guaranteed for 3 years of non-stop 24/7 running.

The ceiling is the preferred mounting position for a Baxx unit – usually, but not essentially, central to the room. Brackets on the Baxx unit also facilitate wall mounting as an alternative where suitable. It's usual to hard wire the Baxx unit to a continuous power circuit as the Baxx unit should never be turned off. Not overnight, not for weekends, not for holidays – it's always working for you to eliminate pathogen contamination in that room.

Each room to be covered should have its own Baxx unit(s). A single Baxx unit is capable of covering up to a 360 cubic metre room, although if there are other fans or cross currents in the room then two units may be preferable to maximise air circulation and surface coverage.

The S800 unit is the largest unit of 1 metre long. It also has the highest treated air output and so is ideal for production areas. The smaller S600 unit has been recently released for quieter locations such as doctor's surgeries, hospital wards, office buildings, schools, children's nurseries and aged care facilities.

Booster units are available to supplement rooms with lots of airflow such as cool rooms. In these circumstances, a single S800 Baxx unit can be installed to run continuously, while the booster units are positioned in front of the existing cooling fans and wired to them so as to only be active when the fan is blowing over them. This reduces the initial purchase price of installing BAXX to large plants.

In the near future, 12 and 24 volt units will become available for refrigerated trucks, coaches and similar such applications. Applications encountered so far include –

- Flour mill storage rooms to eliminate flour moulds – 40% measured reduction.
- Packaging company clean rooms for food packaging materials.
- Smallgoods manufacturing.
- Export Game meat facility boning room.
- Yoghurt cooking and rapid cooling rooms.
- Meat wholesalers.
- Chicken meat processing plants.
- Seafood processing plants.
- Hospital wards – particularly to combat Norovirus.
- Retail fruit and vegetable displays – reduced banana browning by 4 days.
- Cold storage rooms.
- Pet shops and accommodations.

The application of BAXX into the flour mills has been particularly exciting with a major milling company encountering problems of small pockets of mould growth in flour storage areas where some spilled and residual flour on the floors and in corners was near impossible to control.

BAXX was installed as a trial and in the first 2 weeks of operation demonstrated a 40% reduction in airborne spores and units were purchased. The same company in another plant were concerned about premature mould growth in some of their baked product lines prior to the packaged use-by dates despite

Such is the confidence in the construction and reliability of the Baxx unit that it is guaranteed for 3 years of non-stop 24/7 running.

positive and filtered air control in the packing and cooling rooms. The installation four Baxx units into an area of some 400 square metres of floor space to compliment the existing air control is showing dramatic improvements in lowering mould spore counts in the two rooms. Final results will be reported in a future update.

Several large meat and other food industry users of BAXX have also noted a reduction in sick leave by staff working in the areas covered by the Baxx units. After all, BAXX is killing flu and cold virus just as efficiently and effectively as any other pathogen. ■

Baxx carries HACCP International's food safety certification.



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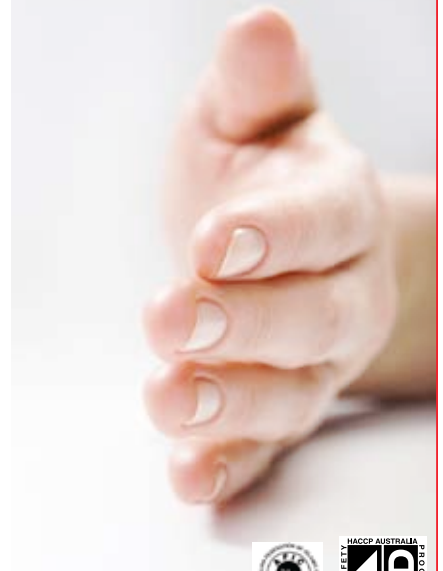
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In this section are a few food safety and food related news snippets from around the world. Keep up to date with trivia as well as news!

From the UK

Nutrition of lunchbox foods attacked

By Jess Halliday, 16 november 2009

The UK consumer watchdog 'Which?' is campaigning for strict rules on the sugar, salt and fat content in foods that appear to be healthy, following a study of foods commonly put in kids' lunchboxes.

The study, which is published in the December issue of 'Which?' magazine, involved asking 394 parents what products they put in the lunchboxes of their primary-school-aged children. They also purchased brand-leading items that were of a size to fit into a lunch box.



Four in ten parents said they found it a challenge to assemble healthy lunch boxes. Products that at first glance appear to be healthy may not be so when you look more closely at the nutritional labels, it says.

Amongst the products criticised are 'Dairylea Lunchables Ham 'n' Cheese Crackers. One pack contains 1.8g of salt, more than half the daily allowance of a 4 – 6 year old. A 200ml 'Fruit Shoot' orange juice Drink has 23g of sugar – almost five teaspoons; and 'Munch Bunch Double Up Fromage Frais' has two teaspoons (12.4g) of sugar but only 2.25g of fruit purée.

Martyn Hocking, Editor, of 'Which?' magazine, said: "The best way to beat the lunchbox baddies is by checking the nutrition and ingredient information. We'd also like to see the rules on health and nutrition claims made tougher so that there's less confusion on the supermarket shelves."

From Australia

Food Ministers announce Dr Neal Blewett to chair the Food Labelling Review

Ministers responsible for food issues in Australia and New Zealand met in October. The Chair of the Australia and New Zealand Food Regulation Ministerial Council, Australian Parliamentary Secretary for Health, Mark Butler, announced that former Australian Health Minister, Dr Neal Blewett AC, will head up the Panel which will undertake a



comprehensive examination of food labelling law and policy.

"Dr Blewett was a pioneer of Australia's universal Medicare health system and is a strong advocate for the rights of consumers. I am delighted that he has agreed to chair the Review Panel," Mr Butler said.

"The expert panel of prominent people will bring together a wealth of expertise in public policy, public health, economics, law, consumer behaviour and business" Mr Butler said. He continued, "This extensive Review will play an important role both for consumers who are looking for clarity in labelling and industry who are looking for certainty about their roles and responsibilities,"

From Germany

Chocolate is good for you, significantly improving skin elasticity

Barry Callebaut, the world's leading manufacturer of high-quality cocoa and chocolate products, announced the results of a recent clinical trial into the anti-aging properties of ACTICOA® cocoa and chocolate. The study, conducted by Skin Investigation and Technology (SIT) research centre in Hamburg, Germany, demonstrates that consuming 300mg of cocoa flavanols twice a day may significantly increase the elasticity of the skin.

Hans Vriens, chief innovation officer at Barry Callebaut says: "The impressive results of this study add further weight to the anti-ageing properties of ACTICOA cocoa and chocolate, one of the richest known sources of flavanols. We are now closer to understanding how these flavanols nourish the skin from the inside and protect it against damaging environmental influences such as exposure to the sun."



In this most recent long-term, placebo-controlled, double-blind clinical study, the potential effect of an oral supplement based on cocoa flavanols (600mg per day) on skin elasticity was investigated with a

non-invasive topical device. 30 participants were allocated to either the cocoa flavanol group or the placebo group over a period of six months. Subjects in the cocoa flavanol group were given two cocoa extract supplements per day, each containing 300mg of cocoa flavanols, while the volunteers from the placebo group were given two tablets in which the cocoa extract was replaced by microcrystalline cellulose. This positive effect of cocoa flavanols is most likely related to deeper (dermal) changes, which take longer to have a visible effect.

The results are comparable with those achieved by leading cosmetics products. The difference here, however, is that the effect comes from 'within' and is consequently observed over the whole body," says Dr Joachim Degwert, president SIT (Skin Investigation and Technology Hamburg).

From Korea

Supercritical carbon dioxide can decontaminate Ecoli, Listeria and Salmonella in alfalfa seeds

According to new research by W.Y. Junga, Y.M. Choia and M.S. Rhee of The College of Life Sciences and Biotechnology, at Korea University in South Korea, a treatment method using supercritical carbon dioxide (SC-CO2) can help ensure the safety of fresh produce such as alfalfa seeds in terms of Listeria, Salmonella and E. coli contamination.

Supercritical carbon dioxide (SC-CO2) treatment is a non-thermal food preservation technology that can inhibit foodborne pathogens without or with minimum impact on the sensory and nutritional qualities of solid and liquid foods, say the scientists in findings published in this month's International Journal of Food Microbiology.

Fruit and vegetables are flown around the world over long periods of time, giving harmful pathogens an opportunity to breed during transit, meaning food processors have to be even more vigilant.

New processing technologies that can increase food safety without



Alfalfa a high risk vegetable product

the use of destructive chemicals or harmful heat are attractive to processors, along with the possibility of lower costs. Heat processes can often reduce the quality of foods.

The authors of this study claim that only a few previous studies have applied SC-CO2 to solid foods, including seeds, and the effects of SC-CO2 on microorganism inactivation and the seed germination capability have not been extensively studied.

"We sought to develop a method of decontaminating alfalfa sprouts of Escherichia coli O157:H7, Listeria monocytogenes, and Salmonella typhimurium without altering the seed germination capability using SC-CO2," explained the authors.

The results show that treating seeds with SC-CO2 at higher pressures, temperatures, or for longer treatment times resulted in greater microbial reductions than treatments at lower pressures, temperatures, or for shorter treatment times.



From Australia

New Act increases food safety for all Western Australians

Western Australians are protected under some of the most comprehensive food safety regulations in the country with the implementation of the Food Act in October 2009.

The Act will be the principal piece of legislation regulating the sale of food in Western Australia and should provide food safety regulation over the entire food supply chain - from paddock to plate.

Environmental Health Director Jim Dodds said the Act would cover

CONTINUED ON PAGE 18

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a wide range of food safety issues to ensure that consumers could be confident about the safety of what they were buying and eating.

"The Act will apply to everyone involved in the sale of food in WA," he said.

"It will provide the food industry with the opportunity to take ownership over food safety and encourage food safety innovations as a result. The Act adopts the Australia New Zealand Food Standards Code which covers cleanliness, sanitation, hygiene, food serving practices and a whole range of other aspects that go into the preparation and provision of food. Local government will be responsible for the administration of the Act relating to food businesses operating within their district."

Mr Dodds also said that this new legislation would make it clearer and simpler for food vendors to understand what was required of them when it came to food safety.

"Previously we had a number of different pieces of legislation that related to various aspects of food safety," he said.

"Now we have this one piece of legislation which replaces them all, making it clearer for business owners, employees and government organisations alike. WA food businesses will now need to meet the same administrative standards as food businesses elsewhere in Australia."

The Act can be found at http://www.public.health.wa.gov.au/3/829/3/wa_food_regulation.pm

For more information or advice on food safety issues people are advised to contact their local council or the Department of Health's Food Unit on 08 9388 4999 or by email to foodunit@health.wa.gov.au ■



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The HACCP Australia certification and endorsement process supports organisations achieving food safety excellence in non-food products and services that are commonly used in the food industry. The HACCP endorsement is particularly aimed at those organisations that are required to supply 'food safe', 'compliant' or 'HACCP approved' products and services to their food safety conscious customers. This independent assessment and verification of fitness for purpose offers assurance to the buyer or user that HACCP food safety protocols will not be compromised in using such a product or service correctly and that such a product is 'fit for purpose' in the food industry.

Compliant or endorsed products are rigorously reviewed by HACCP Australia's food technologists and in their expert estimation are manufactured and designed to meet all the appropriate food safety standards. In performing the assessment, they look for 'world's best' in terms of food safety features and characteristics. The food technologists undertaking these reviews all have extensive industry and manufacturing experience.

Only products that are assessed as meeting the criteria can carry the mark. Quite often, organisations are required to make modifications to the product, design, delivery, literature or recommendations in order to comply. This process is therefore particularly useful for products that are designed for many industrial applications.

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The HACCP Significance Matrix - A look at risk and likelihood

The first part of the HACCP Programme development project is the 'Hazard Analysis' (the "HA" in HACCP) also referred to as the risk analysis. Usually, in this process, identified hazards are evaluated in terms of risk; an assessment of severity and likelihood. People also call the function of these two factors 'significance'.

Severity is usually clearly understood by those developing HACCP programmes. It is the degree of illness or injury that can be sustained when the defined hazard manifests itself and the product is consumed. Most systems rate severity on a scale from low to high which roughly corresponds from 'No Injury' to 'Death'.

Often, it is the other concept of 'likelihood' which is often poorly understood and misrepresented in HACCP programmes. Most systems use a scale from 'Very Unlikely' to 'Very Likely' but sometimes these words are hard to visualize. I once read an explanation which used the example of a fly entering a room through a window to illustrate likelihood and I have applied this against a scale as follows;

A. Very unlikely. The event is almost impossible and has not occurred in the past. Our window can't be opened and there is a screen fitted.

B. Not likely to occur. The event is improbable but may occur at some time. There is no screen on our window and one day the glass could break allowing the fly entry.

C. Could occur. The event is possible and have heard of it occurring. There is no screen on the window and the window can be opened allowing the fly entry.

D. Known to occur. This event has happened before at our facility. Sometimes the window has been found to be open and the fly has been found inside as there is no screen.

E. Very Likely to occur. The event is almost a certainty and the hazard is present most of the time. There is no glass and no screen on the window and flies are found commonly on both sides.

As mentioned earlier, there are various scales and systems available and there is no problem with modifying a system to suit your operations and risk profile. An appropriate system will definitely improve the likelihood that your system will be technically valid and relevant. ■

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Comedian reveals unsavoury truth of food production in UK

Is it any different in Australia?

Alex Riley follows in the footsteps of Morgan Spurlock in exposing the less appetising aspects of food

With his gangly frame and thick-rimmed spectacles, Alex Riley makes an unlikely assassin. Unfortunately for Britain's A\$370bn-a-year food and drink industry, his wisecracks about its unsavoury practices in a new BBC TV series are little short of deadly.

In "Britain's Really Disgusting Foods", the dry-witted comedian and TV presenter checks out the nutritional content of low-budget meat, interrogates the sourcing of endangered creatures and generally gets in the face of food manufacturers purveying products of dubious environmental and nutritional quality.



Like Morgan Spurlock – the Super Size Me documentary-maker who humbled McDonald's by eating its food – Mr Riley asks awkward questions about what is served up to the public by grocery chains and catering outlets keen to provide products for customers "at a certain price point".

Unlike Mr Spurlock, he engineers products himself in a makeshift laboratory to expose the legal production and labelling tricks used by the food business. In the first show, he demonstrates how it was possible to make a legally saleable chicken kiev with 10 per cent chicken meat and a large amount of breadcrumbs, skin and other animal by-products and, with the help of an industry expert, raised the amount of "meat" on the label to 17 per cent.

He also discovered the secret of a microwaveable lamb shank that lasts for 12 months out of the fridge being sold by a cash-and-carry outlet promoted by Gordon Ramsay. The foul-mouthed chef, who in an episode of Kitchen Nightmares described the meal as "shit in a bag", later explained he no longer endorsed the company.

In a show on dairy products, to be screened tomorrow, Mr Riley looks at the use of hydrogenated fat by a grocery chain and the supermarkets' sale of "singles", which look like processed cheese slices, and are sold in the cheese aisle but contain as little as 6 per cent cheese.

He also tackles the issue of unsustainable palm oil destroying forests. After he arrived at the UK HQ of one of the world's best known confectionery giants with five "orang-utans" and a tanker of "sustainable" palm oil, the chocolate-maker announced it would move to a certified supply by 2015.

In a third show which tackles the EU's Common Fisheries Policy and Nobu restaurants' sale of bluefin tuna, Mr Riley offers to buy Japan's whale meat reserves.

BBC executives commissioned Britain's Really Disgusting Food after the success of an hour-long pilot in 2008 in which the Sheffield-born comic made his own low-budget pie containing a mix of cheap meat, fat, gristle and connective tissue.

By exploiting labelling regulations, Mr Riley's Pies carried a picture of his cloth-capped father, tractors and cows to suggest a wholesome rural image and were blazoned with the words "traditional", "GM-free" and, on account of coming from Reading, "Made in Royal Berkshire".

"I don't believe what these food companies are getting away with. It's ridiculous!"

Its BBC1 debut at 10.35pm on a Monday attracted 2.6 million viewers. "If they get a million they're usually pleased, so it captured the imagination," recalled Mr Riley. "A lot of people came up to me in the street and said: 'I don't believe what these food companies are getting away with. It's ridiculous!'"

Mr Riley says that because the shows are aimed at "a typically non-documentary audience" he uses stunts and humour, while maintaining a "journalistic sense." "It's also a way of approaching companies that they're not used to," he explained. "If you're coming to them with a Paxman style they're quite well versed in dealing with that, but when you're coming at them in a disingenuous approach and say: 'Well done for getting 47 per cent beef into a beef burger' they're not quite sure how to take it."

The programmes start with a raft of rumours and half-baked ideas, some of which turn out to be myths, and some true.

"The lawyers have said it's the hardest programme to make in the BBC," Mr Riley said. "People do send long legal letters." He added: "The BBC is the only kind of place where you could make this show. In the dairy show we talked about chocolate advertising, you couldn't do that on a commercial channel because they're all big advertisers." ■

This article was written by Martin Hickman and first appeared in 'The Independent' newspaper in the UK and is reprinted with permission.

FACTERIA

Clostridium

The genus *Clostridium* refers to a group of anaerobic, spore forming rod shaped bacteria. Of the 32 main species, only two have strong implications in food-borne illness; *C. botulinum* and *C. perfringens*. Two other species, *C. difficile* and *C. Tetani* are human pathogens causing respectively, colitis and tetanus.

C. perfringens was once known as *C. Welchii* and is one of the most common food borne illnesses. (The bacteria is also responsible for Gas Gangrene in wounds). Illness is caused by toxin production in the gut when large numbers of the viable cells are consumed. An infective dose is thought to be about 1,000,000 + orgs per gram. The illness is characterized by a rapid onset (about 10 hours) and rapid recovery (about 24 hours) from symptoms such as diarrhea and stomach cramps. Vomiting is rare from the illness.

The bacteria is widely spread in nature and commonly carried in the guts of warm blooded animals and insects, soil, sludge and rotting plant material. The most common contamination scenario is where spores of the bacteria survive a cooking process only to germinate if the food is held for extended periods and cooled too slowly prior to consumption. Germinated cells will rapidly multiply to a level of infective dose if the correct conditions for growth exist. Meats, poultry and sauce/gravies are the most commonly implicated foods and the illness is so common it is thought that 100% of the adult population have suffered from at least one incidence of *C. perfringens* poisoning.

C. botulinum produces botulin toxin, held to be the most toxic substance known to man. 500grams of the material could kill half the world's population ! (LD50 of approximately 1 nanogram / Kg). It is also the active substance in Botox treatments !


Initially isolated from hams implicated in an outbreak of botulism (botulin poisoning), the organism was originally thought to be most common in sausage and fermented meat production ('botulus' is sausage in Latin). In the food industry today, low to mid acid foods under anaerobic conditions (such as some canned foods) are at risk of the growth of this bacteria....typically again, through the germination of spores surviving the cooking process. There has been some recent concerns about gourmet-type oil-preserved foods (such as garlic in olive oil) being susceptible to the growth of this bacteria.

C. botulinum can be isolated from soils in various regions of Australia although outbreaks of botulism are thankfully rare

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as mortality rates are high from the illness. There have been no reported (confirmed) case in Australia since 1991. Symptoms include blurred vision, loss of speech and swallowing ability, weakened respiratory functions and subsequent death. Onset of illness is typically 18 – 36 hours.

Due to the serious nature of the organism, thermal processing procedures in the food industry for products such as canned foods are built around the destruction of this bacteria in low to mid acid foods.

The toxin has also been considered for use as a biological warfare weapon due to it's extreme toxicity. Research was conducted by Nazi Germany in this regard and it is rumored to have been used in a failed assassination attempt against Fidel Castro by the CIA by coating his cigars in the substance. ■

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UN food summit ends without specific targets for ending global hunger

18 November 2009 – The three-day United Nations summit on world food security wrapped up in Rome today with its host lamenting that it produced neither measurable targets nor specific deadlines for ending a scourge that afflicts more than 1 billion people around the planet.

On its first day, the summit unanimously adopted a declaration renewing a commitment to eradicate hunger sustainably and at the earliest date. Yet during the three days of talks 51,000 more children are estimated to have died of hunger – one every five seconds, 6 million a year – even though, in the words of Secretary-General Ban Ki-moon, the world has more than enough food for all.

UN Food and Agriculture Organization (FAO) Director-General and summit host Jacques Diouf said the meeting, which agreed to work to reverse the decline in domestic and international funding for agriculture, promote new investment, and proactively face the challenges of climate change to food security, marked “an important step towards the achievement of our common objective – a world free from hunger.”

But, he declared, “to my regret the official declaration adopted by the Summit this past Monday contains neither measurable targets nor specific deadlines which would have made it easier to monitor implementation.”

FAO had proposed setting a target of 2025 for total eradication of hunger from the face of the earth and increasing official development assistance (ODA) to agriculture to \$44

billion per year for investment in developing-country agriculture and rural infrastructure.

At the same time, however, the summit produced four important commitments, Mr. Diouf said. These were: renewed efforts to achieve the first Millennium Development Goal of halving hunger by 2015; improved international coordination through broadened participation by the public and private

sector; international funding for agriculture in developing countries; and new investments in agricultural production there.

“I am convinced that together we can eradicate hunger from our planet,” he added. “But we must move from words to actions. Let us do it for a more prosperous, more just, more equitable and more peaceful world. But above all,

let us do it quickly because the poor and the hungry cannot wait.”

Sixty heads of State and government and 191 ministers from 182 countries and the European Community attended the gathering, including Pope Benedict XVI who called for the rules governing international trade to be separated from “the logic of profit viewed as an end in itself.”

Opening the summit, Mr. Ban laid out a series of necessary steps, ranging from immediate needs such as food aid, safety nets and social protection to longer-term goals achieved through increased investments in agricultural development, including provision of seeds, water supplies and land to ensure higher productivity, better market access, and fairer trade, above all for smallholder farmers, especially women. ■

A scourge that afflicts more than 1 billion people around the planet



HOT LINKS

Food Safety Information Council

www.foodsafety.asn.au

This organisation is industry run and is a disseminator of food safety news to consumers. It is a non-profit entity supported by the Australian Department of Health and Ageing, state and territory health and food safety agencies, local government, and leading professional, industry and community organisations. It aims to reduce the incidence of food poisoning in the community. The members list include organisations from many fields and they manage a number of worthwhile initiatives each year.

Specialist food industry lawyers in the land of litigation

www.marlerclark.com

Lots of food safety news here from the land of litigation! Marler Clark was established in 1998 bringing together top attorneys for the plaintiffs in the landmark litigation arising from the '1993 Jack in the Box' E. coli O157:H7 outbreak in the United States. It is now one of the nation's foremost law firms representing many victims of foodborne illness. Their news stories make for good reading.

British Retail Consortium – Food Safety Standards

www.brc.org.uk

The British Retail Consortium is a leading trade association representing a wide range of retailers from the large multiples and department stores through to independents. Commonly referred to as 'The BRC', this organisation has various food safety standards which are commonly adopted by food companies all over the world. HACCP Australia offers auditing services to BRC standards.

Restaurants on camera in Sydney and Melbourne

www.sydneyfood.tv and

www.melbournefood.tv

Sydney Food TV is a restaurant guide with a difference. It has all the usual things including menu's, maps and stunning pictures, but where Sydney Food TV differs from all the other guide's is that it provides a full screen video, including an interview with the chef or owner. If you are interested in restaurant food, you can obtain an interesting insight on what goes on behind the scenes at some of Sydney's finest restaurants. An similar site for Melbourne restaurants is opening soon. ■



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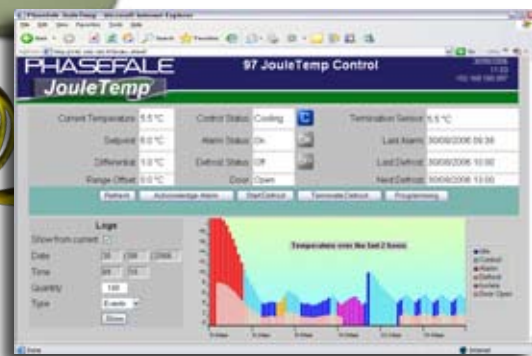
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An introduction to HACCP Australia's certification and endorsement process for products and services supporting the food industry can be found on page 18. The products and companies listed below are all certified by HACCP Australia

CATERING EQUIPMENT	MACKIES ASIA PACIFIC SEMAK TOMKIN AUSTRALIA	Foodsafe bread loaf pans and bakery trays Manufacturers of chicken rotisseries Foodsafe kitchen equipment	02 9708 2177 03 9796 4583 02 9319 2993
CLEANING EQUIPMENT	AUSSIE RED EQUIPMENT BAXX AUSTRALIA ESWOOD AUSTRALIA OATES CLEAN SABCO STEAMMASTER AUSTRALIA PTY LTD	Aquafortis hot water high pressure clean and capture equip. Equipment for the elimination of airborne pathogens Manufacturers of industrial dish and glass washers Full range of food grade cleaning equipment Scourers, sponges, clothes and cleaning aids Hot and cold water pressure cleaners	1800 804 878 02 9939 4900 02 9604 7333 1800 791 099 1800 066 522 02 9796 3433
CLEANING CHEMICALS	AVANTI CHEMICALS BIOTEK-OZONE AUSTRALIA & NEW ZEALAND DEB AUSTRALIA AUSTRALIAN STEAM CLEANING & MAINTENANCE SYSTEMS	Cleaning chemicals for food and agri. businesses Ozonated water generators for sanitation Skin care and hand cleaning soaps for food handlers All purpose cleaning and disinfectant products	07 5549 3666 02 9966 0555 1800 090 330 07 5599 8410
CLEANING AND MAINTENANCE SERVICES TO THE FOOD INDUSTRY	ACE FILTERS AERIS HYGIENE SERVICES PTY LTD BORG CLEANING CHALLENGER CLEANING SERVICES ICE CLEAN INDUSTRIES INTEGRATED PREMISES SERVICES P/L ISS HYGIENE SERVICES METROPOLITAN FILTERS WASH IT AUSTRALIA OZ TANK PINK HYGIENE SOLUTIONS POWERTANK PTY LTD	Food grade cooking oil filters Specialist cool room and cool room motor cleaning services Specialist contract cleaning services for food premises Specialist contract cleaning services for food premises Residual free dry ice cleaning Specialist contract cleaning services for food premises Bathroom services for the food industry and premises Filters and filter services for range hoods and food facilities Food transport vehicle cleaning and sanitation services SS deep cleaning tanks and systems for pans and trays Bathroom services for the food industry and premises SS deep cleaning tanks and systems for pans and trays	1300 555 204 1300 790 895 03 9463 1300 02 9993 0562 0403 044 162 02 9432 8000 02 8644 9704 1300 653 536 07 3800 1389 1300 66 88 66 1800 007 794 0411 441 441
CLEANING MATERIALS	3M CHEMPACK SUPPLIES CLOROX AUSTRALIA CONCEPT LABORATORIES PTY LTD DEB AUSTRALIA LALAN GLOVES SAFETY CARE MEDIVAC OATES CLEANING SABCO SCA HYGIENE AUSTRALASIA	Scotchbrite™, cleaning chemicals, scourers and sponges Food grade bathroom paper and dispensers Chux™, Oso™ and Glad™ range of materials Suppliers of sanitising hand gel and sanitising wipes Disposable cleaning wipes and cloths Food grade cleaning materials Disposable cleaning wipes for the food industry Full range of kitchen cleaning materials Scourers, sponges, clothes and cleaning aids Tork premium colour coded specialist cloths	136 136 02 9542 5822 02 9794 9500 07 5493 8433 1800 090 330 03 9706 5609 03 5436 1100 1800 791 099 1800 066 522 03 9550 2999
CLOTHING - DISPOSABLE GLOVES AND PROTECTIVE WEAR	LALAN GLOVES SAFETY CARE LIVINGSTONE INTERNATIONAL PARAMOUNT SAFETY PRODUCTS RCR INTERNATIONAL STEELDRILL WORKWEAR AND GLOVES YAP TRADING COMPANY	Disposable gloves for the food industry Disposable gloves for the food industry Disposable gloves for the food industry Gloves and disposable protective wear Disposable gloves for the food industry Disposable gloves for the food industry	03 9706 5609 02 8344 7252 03 9762 2500 03 9558 2020 03 9790 6411 02 9826 8299
FACILITY FIXTURES AND FIT OUT	ALBANY DOORS CARONA GROUP PTY LTD DMF INTERNATIONAL PTY LTD DYSON APPLIANCES PHILIPS ELECTRONICS AUSTRALIA LTD THORN LIGHTING	Automatic rapid close doors Coldshield's PVC flexible doors for food premises Flexible door material for food manufacturing and storage Suppliers of food safe hand dryer Food safe tube lighting for food handling facilities Food safe lighting and fitout solutions for food handling facilities	1300 666 232 1800 462 233 02 9636 5466 02 9540 0400 02 9947 0000 1300 139 965
FLOORING, WALLS, AND MATTING	3M ALTRO APAC BASF CONSTRUCTION CHEMICALS BLUESCOPE STEEL DEFLECTA CRETE SEALS DYNAMIC COMPOSITE TECHNOLOGIES GENERAL MAT COMPANY (THE) RAMVEK PTY LTD ROXSET AUSTRALIA	Specialist safety matting for food and beverage areas Specialist food premises flooring and wall panels UCRETE Flooring System Colorbond® anti-bacterial coolroom panelling products (quote 2222) Anti-bacterial Flooring Product and Services Glassboard Coolroom and Food Transport Panelling Products Specialist safety matting for food and beverage areas Wall panelling for food areas Suppliers and installers of specialist food premises flooring	136 136 1800 673 441 1800 333 048 1800 022 999 03 9318 9315 1800 051 100 1800 625 388 03 9794 9342 02 9988 4822
FOOD SERVICE EQUIPMENT AND UTENSILS	AACLAIM QUALITY SALES FOOD SERVICE EQUIPMENT (FSE) KENCAN LTD MONO & BEYOND P/L TOMKIN AUSTRALIA PTY LTD	Food service and food storage light equipment Juice dispensers and other buffet equipment Kee-seal™ disposable piping bags Food grade trays Providers of colour coded catering utensils, catering equipment and piping bags	02 9525 1049 1800 673 153 07 3273 8111 02 9690 0900 02 9319 2993
FOREIGN BODY IDENTIFICATION	SMITH HEIMANN AUSTRALIA WJB ENGINEERING	X-ray inspection and foreign object detection equipment Magnetic separation technology and services	02 9597 6833 1800 835 858
HAND SOAPS AND BARRIER CREAM	CONCEPT LABORATORIES DEB AUSTRALIA PROARMA	Food Grade hand soaps Food Grade hand soaps Antibacterial protection hand cream	07 5493 8433 1800 090 330 1300 889 280
ICE MACHINES	ICE MASTER SYSTEMS PTY LTD	Ice machines for hotels, restaurants and catering outlets	03 9455 2300

ICE MACHINES CONT.	HOSHIZAKI LANCER PTY LTD	Ice machines for hotels, restaurants and catering outlets	08 8268 1388
KITCHEN CONSUMABLES	3M CLOROX EDGAR EDMONDSON PTY LTD OATES CLEANING RCR INTERNATIONAL	Scotchbrite™, cleaning chemicals, scourers Glad™, Chux™ and Oso™ range of materials Supplier of food grade kitchen consumables Full range of kitchen consumables Food grade pallet and crate covers	136 136 02 9794 9500 02 9557 4411 1800 791 099 03 9558 2020
LABELS - FOOD GRADE	OMEGA LABELS PTY LTD P & I PTY LTD PURBRICK HEALTHPRINT W W WEDDERBURN	Beverage packing material and labels Supplying paperboard packaging and labels Labels for the food and pharmaceutical industries Food safe labels for food products and food retail	1800 028 924 02 8707 7109 03 9751 7100 02 9797 0111
LUBRICANTS - FOOD GRADE	LANOTEC AUSTRALIA	Suppliers of food grade lubricants	07 3373 3700
MANUFACTURING EQUIPMENT AND COMPONENTS	BSC MOTION TECHNOLOGY ENMIN PTY LTD FCR MOTION FESTO PTY LTD HARRINGTON ELECTRICAL MOTORS SICK PTY LTD SMC PNEUMATICS SPECIALTY AIR	Food grade bearings and housings Manufacturers of food grade feeder equipment Manufactures of food grade geared motors and inverter Pneumatics and valves for food manufacturing equipment Stainless steel electric motors for food processors Food safe switches, sensors and sensor solutions Suppliers of pneumatics and valves for food manufacturing Compressed air piping system in food manufacturing processes	03 9560 3222 03 9753 3633 03 9362 6800 1300 889 696 03 9546 7515 03 9497 4100 02 9354 8222 1300 1300 24
PACKAGING MATERIAL AND EQUIPMENT	AC FOUNDATION ASTECH PLASTICS DALTON PACKAGING MICROPAK PTY LTD NETPAK	Repacking of consumables and food products Supplier of food safe pails and lids Manufacturers of paper bags and products for the food industry Manufacturers of food grade packaging materials Suppliers of food grade netting to small goods manufacturers	02 9809 0254 02 6895 3330 02 9774 3233 02 9646 3666 02 9604 4950
PEST CONTROL EQUIPMENT AND MATERIALS	AGSERV QLD PTY LTD BASF AUSTRALIA LTD BELL LABORATORIES INC EKO SOLUTIONS PEST FREE AUSTRALIA PTY LTD STARKEY PRODUCTS PTY LTD WEEPA PRODUCTS PTY LTD	Suppliers of "Brandenburg" flying insect control Suppliers of rodent and cockroach control materials Suppliers of rodent control materials and stations Distributors of the 'ecomille rodent eradication equipment Specialist electronic vermin elimination devices Range of insect control devices Weep hole protection devices for new or retro application	07 3255 5572 02 9150 7449 0427 802 844 1800 612 212 02 4969 5515 08 9302 2088 07 3844 3744
PEST CONTROLLERS (ALL STATES)	RENTOKIL SCIETIFIC PEST MANAGEMENT	National pest control services for the food industry National pest control services for the food industry	1300 736 865 1300 139 840
PEST CONTROLLERS (NSW)	AEROBEAM PROFESSIONAL PEST MGNT. AMALGAMATED PEST CONTROL ANT-EATER ENVIRONMENTAL SERVICES CPM PEST & HYGIENE SERVICES CORPORATE PEST MANAGEMENT EAGLE PEST CONTROL ECOLAB PTY LTD HACCP PEST MANAGEMENT ISS PEST CONTROL STOP CREEP PEST CONTROL TERMIMESH PEST MANAGEMENT	Specialist food premises pest management Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Regional pest control services for the food industry Specialist pest control services for the food industry	02 9636 5840 13 19 61 1300 551 333 02 9674 5499 02 9311 1234 02 9748 0066 02 9748 0066 02 9922 3743 13 14 40 02 9371 3911 02 4351 0482
PEST CONTROLLERS (QLD)	AMALGAMATED PEST CONTROL ARREST-A-PEST ECOLAB PEST CONTROL GOODE PEST CONTROL ISS PEST CONTROL	Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry	13 19 61 07 3279 1199 02 9017 7655 1300 13 12 14 07 3815 6600
PEST CONTROLLERS (VIC)	AMALGAMATED PEST CONTROL DAWSON'S AUSTRALIA ISS PEST CONTROL PESTAWAY AUSTRALIA PTY LTD PROTECH PEST CONTROL STATEWIDE PEST TRAPS PEST CONTROL PTY LTD	Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for the food industry Specialist pest control services for food industry Specialist pest control services for the food industry	13 19 61 0411 131 650 13 14 40 03 9850 3777 0438 780 980 1800 136 200 03 9390 6998
PEST CONTROLLERS (WA)	ISS PEST CONTROL TERMIMESH PEST MANAGEMENT	Specialist pest control services for the food industry Specialist pest control services for the food industry	13 14 40 02 4351 0482
REFRIGERATION - GOVERNORS, EQUIPMENT AND DATA	CAREL DANFOSS DIGINOL HEATCRAFT AUSTRALIA PTY LTD PHASEFALE	Temperature controllers and supervisors for refrigeration M2 alarm and monitoring system Data loggers and data services for temperature control HACCP specification cool room thermostats and alarms Temperature controllers for refrigerated storage	02 8762 9200 02 8845 1813 07 3206 3079 13 23 50 03 9553 0800
REFRIGERATORS AND REFRIGERATION SERVICES	AERIS HYGIENE SERVICES PTY LTD MELBOURNE REFRIGERATION SERVICES REJUVENATORS (THE)	Specialist cool room and cool room motor cleaning services Refrigeration installation and repair Specialist cool room cleaning and rejuvenation services	1300 790 895 03 8761 6395 0407 292 826
STAFF RECRUITMENT AND HUMAN RESOURCES	SKILLED GROUP	Specialist HACCP trained workforce solutions for the food industry	1300 366 606
STORAGE, SHELVING AND RACKING	ARMACEL TECHNOLOGY GROUP MONO & BEYOND PTY LTD	Food storage containers, food grade shelving Distributors of food grade shelving	02 9450 0900 02 9690 0900
MANAGEMENT SYSTEMS AND REPORTING	SHADOW ORGANISATION PTY LTD SPECIALITY AIR	Audit, compliance and monitoring systems Specialist compressed air servicesfor the food industry	02 8448 2090 1300 1300 24
THERMOMETERS, PH METERS AND DATA LOGGERS	3M FLUKE THERMOMETERS TESTO PTY LTD TRIPLE POINT CALIBRATION	TL 20 Temperature logger for logistics Digital thermometers and pH meters for the food industry Specialist thermometers for use in the food industry Thermometer sales, calibration and services	136 136 08 8231 3455 03 9800 4677 08 8231 3455
TRANSPORT CONTAINERS AND PALLETS	ARMACEL TECHNOLOGY GROUP HILLS INDUSTRIES SCHUETZ DSL (AUSTRALIA) PTY LTD	Manufacturers of food grade pallets and storage solutions Food safe pallets and storage solutions Food safe storage and transportation palletcons	02 9450 0900 07 3212 9588 1800 336 228
WALL & CEILING PAINT	LAMAL GROUP PTY LTD	Range of food facility paints with antimicrobial additive	1300 394 307

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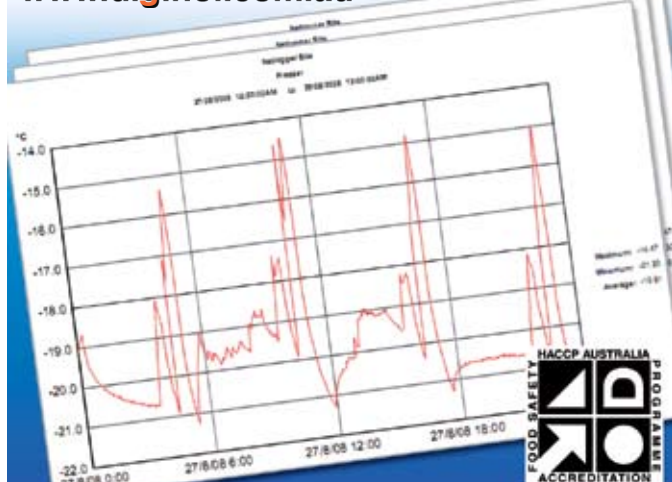
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