



HACCP INTERNATIONAL

FOOD SAFETY BULLETIN

ISSUE 15 2019

Food Grade Lubricants –
It's more than just the formula

Food Safety Culture –
What does it 'feel' like?

Hand Held Thermometers –
Choices and options





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3M

Welcome



Clive Withinshaw,
Director, HACCP International

We've finally succumbed to the digital age! This is our first 'digital only' edition of the Food Safety Bulletin. While we have very much enjoyed producing hard copies over the last 10 years, the increasing circulation, cost of postage and the, quite right, demand for environmental initiatives within our organisation saw this product as a target for change!

I, for one, continue to enjoy paper editions of my favourite magazines but do find business and technical journals are better suited to electronic delivery as they do tend to be read in the office/work environments which in themselves are becoming increasingly paperless.

That brings me on to record keeping. Not withstanding the above, we still see food facilities, even modern ones, still being overly dependent on paper. This still happens, despite the accuracy, time efficiency and validation that electronic systems present. Sometimes, old habits die hard. I would encourage manufacturers and processors to spend some time looking at the products on the market that are geared to food production and food safety. We, at HACCP International, have evaluated a number of these in recent times and have found the ones that carry our mark to be truly effective. If anyone wants some recommendations and advice regarding the ones we have seen, just email us.

HACCP International is pleased to announce the opening of a new office in Japan. Mr Nigel Asai has taken up the position of Managing Director, Japan and Korea. He has been very busy in his first few months and, even in that short space of time, has been involved in certifying some truly world class, food safe products that are supporting the food industry. We are particularly pleased to have already certified products from Kuraray Kuraflex, Hitachi Chemical, Hoshizaki and 3M Japan. All these companies operate to

world's best practice and, when it comes to the food industry, demonstrate that food safety is front of mind in their design process.



Nigel Asai,
HACCP International's
new Managing Director
for Japan and S. Korea

In other news, Richard Mallett, our EMEA Director, has joined an important GFSI panel. The 'GFSI

Services Provision Technical Working Group' will address technical and other services provided to the food industry. These services have a significant impact on food services and we very much welcome its establishment and look forward to its outcome in a couple of years.

We are also very pleased to see the take up in interest in our new

standard – Pest Management Services for Food Businesses – which has had over 1000 downloads. It has received very encouraging support from food businesses looking to manage contractor compliance and conformance. At the same time, pest service providers, currently certified by HACCP International, are now being audited to it in transition, while new applicants are meeting it directly. Demanding as it may be, most auditees have measured up well, giving a great degree of confidence to their clients, and proving their ability to deliver a world's best practice and compliant service to the industry. Applicants and certified companies now extend from Europe to India, Singapore and Australia.

If you are looking for truly excellent food safe products to support your manufacturing and handling – do check out the registers on our website.

Thanks for taking an interest. ❄

HACCP
International's
Pest
Management
Standard for
Food Businesses
has had more
than 1,000
downloads in the
last 9 months."



For more information on any article in this magazine or to submit editorial or a comment please email to ifsb@haccp.com.au

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AMERICAS

Ron Vail, Vice President – Americas
T : +1 720 376 2419
E : ron.vail@haccp-international.com

ASIA

Bill Simos, Managing Director – Asia
T : +852 2824 8601
E : bill.simos@haccp-international.com

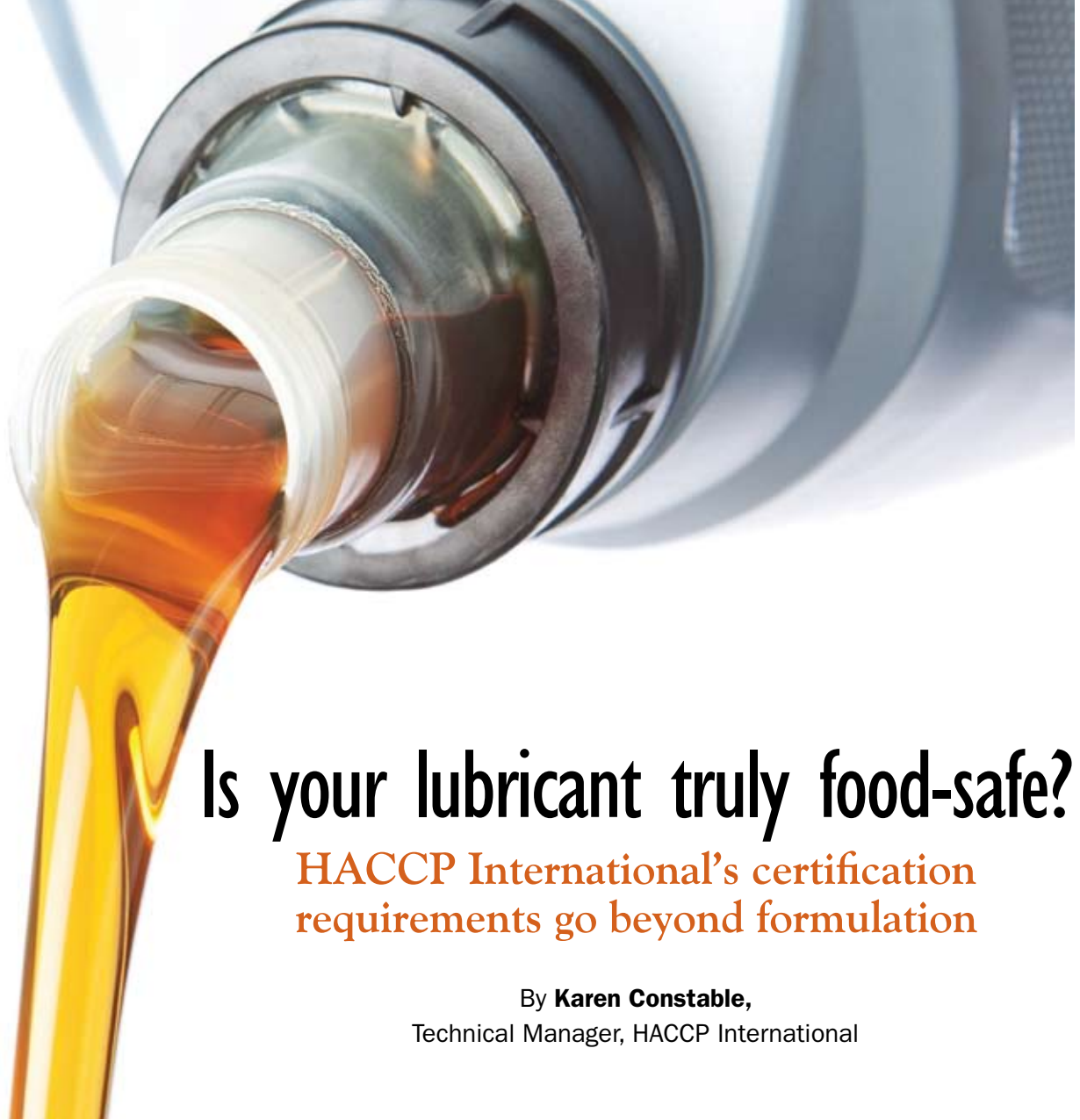
AUSTRALASIA

Clive Withinshaw, Director – Australasia
T : +61 2 9956 6911
E : clive.w@haccp-international.com

EUROPE, MIDDLE EAST, AFRICA

Richard Mallett, Director – EMEA
T : +44 1227 731745
E : richard.m@haccp-international.com

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Is your lubricant truly food-safe?

HACCP International's certification requirements go beyond formulation

By **Karen Constable,**

Technical Manager, HACCP International

Within almost all food manufacturing processes there are opportunities for lubricants to come into contact with food and food packaging. Lubricants from compressor equipment can contaminate the compressed air that contacts food, conveyor chain lubricants can come into contact with food products as they move from place to place during manufacturing and gear boxes can release oils and greases. Lubricants are also deliberately made to contact food when used as release agents used to prevent food sticking to grills or baking pans.

Food manufacturers are required to use lubricants that are safe for their intended use. Lubricants for use in food processing areas are commonly marketed as 'Food Grade'. Food grade lubricants are supposed to have a low level of toxicity and are usually formulated to be a pale or clear colour and have a low odour. However, to be truly safe for use around food, lubricants need more than just a low-tox formulation.

Contrary to popular belief, there are no formal, government-regulated rules or laws that specifically define an appropriate, low-toxicity, 'food grade' lubricant. In the absence of such rules, a commonly used means of designating a lubricant 'food-grade' is NSF registration. NSF is a private American product testing, inspection and certification company.

Commonly, a designation of 'food-grade lubrication' can be based on the completion of a formulation review, and a

review of label contents. Unfortunately, while an appropriate formulation makes an important contribution to food industry lubrication, there is much more to food safety than just chemical toxicity. A review based only on chemical toxicity does not address biological hazards or physical hazards to food safety from lubricants used in critical areas.

With a focus on formulation as a means to designate a lubricant 'food grade', it is easy for some lubricant manufacturers to overlook the necessity to manufacture, pack and store lubricants such that they are hygienic and free from contamination which could lead to hazards in the foods with which they make contact.

A full assessment of the food safety profile of a lubricant should extend far beyond the traditional boundaries of checking formulations. According to the most widely accepted method for managing food safety, the HACCP protocols, which are codified by the World Health Organisation, food safety depends on the identification and minimisation or elimination of physical and biological hazards as well as chemical hazards. As such, formulation-based evaluations of 'food-grade' lubricants are missing two thirds of the story.

Martin Stone, HACCP International's Technical Director explains;

"A food-safe lubricant is one that does not introduce chemical, physical or biological hazards to food processing areas."

Beyond formulation; a holistic approach

HACCP International evaluates lubricants for their suitability for use by the food industry using HACCP International's standard for food-safe equipment, materials and services. The standard utilises a risk-analysis approach that considers food safety risks arising from chemical, physical and biological hazards that could be presented by materials such as lubricants when used in food handling facilities.

The HACCP International standard takes a holistic approach to food safety, considering both the intended applications of use for the material being assessed as well as possible consequences from unintended use or errors in use. Food safety risk assessments are conducted by expert food safety personnel who investigate the product thoroughly, performing a hazard analysis for chemical hazards (including allergens), physical and biological hazards.

An evaluation of a lubricant for use in a food manufacturing process typically includes an in-depth consideration of the points listed below.

Chemical hazards and controls

Is the lubricant formulation such that has low mammalian oral toxicity?

In the event of unintended or unexpected contamination of food in an error scenario what are the likely outcomes for consumers of the food?

Is the lubricant manufactured, stored and transported using systems that will effectively prevent contamination with non-ingredient chemicals during batching, blending, packing and storing processes?

A food-safe lubricant is one that does not introduce chemical, physical or biological hazards to food processing areas."

Is the lubricant formulated to be free from common human food allergens?

Is the lubricant manufactured, handled and stored using systems that will effectively prevent inadvertent contamination with common human food allergens?

Is appropriate information about the presence and absence of human food allergens made available to food industry purchasers and users of the lubricant?

Is the lubricant designed, marketed and/or supplied with information available at the point of use such that it would be clear to the user about where and how it should be used within a food manufacturing facility?

Is the lubricant sold with instructions for use that reduce the likelihood that it will be over-applied such that excess product could be present in food handling areas?

Is the lubricant manufactured using systems such that it

can be expected to be manufactured in a consistent manner to the appropriately controlled formulation?

Are compliant safety data sheets (SDSs) made available to purchasers of the lubricant?

Physical hazards and controls

Is the lubricant manufactured in such a way that it is protected from contamination with dust, dirt, swarf, wires, machine parts and other foreign objects during batching, blending and packing?

Is the lubricant packed and transported to adequately protect it from dust, dirt, hair and other foreign objects during transportation and storage?

Is the lubricant packaging free from small loose parts that could become a hazard in a food factory?

Is any dispensing and application equipment supplied with the lubricant free from small parts that could become physical contaminants in a food handling area?

Are packaging parts and dispensing accessories such as lids, tubes or straws brightly coloured and firmly affixed to reduce the likelihood of them getting lost in a food handling area?

Biological hazards and controls

Is the lubricant manufactured with components that are commercially sterile?

Are components, packaging materials, manufacturing equipment and work-in-progress products protected during manufacture, packing and storage from dripping condensate, birds, rodents, insects and workers hands?

Is the lubricant manufactured under conditions that protect it from the ingress of bacteria, viruses, yeasts, moulds and protozoa pathogens that could present a risk to human health?

Is the lubricant protected from biological hazards during packing, transport and storage?

Risk-based hazard identification

Stone explains: "Depending on hazards identified during the risk-based evaluation, we may send an experienced auditor to examine manufacturing processes such as batching procedures, manual handling activities or methods for cleaning of mixing vessels between batches."

Beyond food safety there are other product characteristics that can affect a lubricant's suitability for use in the food industry. For this reason, when evaluating lubricants for the purposes of certification, HACCP International also asks:

Is each unit of lubricate labelled with a lot Identifier to allow for full traceability in the event of a food safety problem?

For lubricants designed with direct food contact applications (such as pan release agents), is appropriate information about the components available to users?

Is the lubricant free from strong odours that could taint food?

Stone says: "We are concerned by the food industry's reliance upon simple formulation reviews for food safety, since the process does not address all the potential food safety risks posed by lubricants. I'm pleased that the HACCP International certification programme does take these important risks into account and mandated by the HACCP methodology." ❄

HIGH EFFICIENCY SOLUTIONS HAND-IN-HAND WITH FOOD SAFETY FROM CAREL

Ever since ancient times, mankind has needed to learn how to preserve food, so as to be able to survive periods in which there was scarce availability of game or between harvests.

However, it was only the advent of "mechanical cooling" in industry and subsequently the progressive introduction of home refrigerators (the first model went on sale in 1913) that allowed food to be transported and stored for long periods of time, maintaining its original properties.

Availability of fresh, healthy and good quality food, anywhere any time, for the most part depends on "cold chain" management, or in other words, ensuring the right temperature, fundamental for both frozen foods as well as fresh produce.

The guidelines established by international organisations and food and environmental experts recognise the following priorities:

- Food safety
- Food security
- Food waste reduction
- Environment
- Energy saving

For operators in the food industry, the following are also important

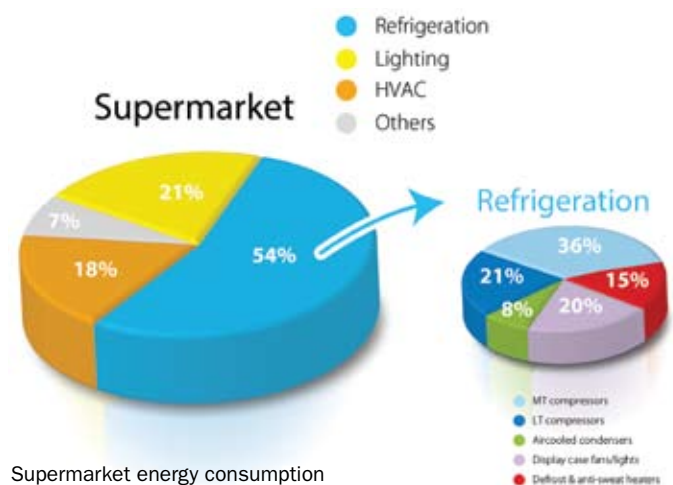
- Food quality
- Shelf life
- Reduction in running costs
- Return on investment.

Here we look at how these objectives can be pursued by exploiting the best modern mechanical, thermal and electronic technology, combined with increasingly intelligent software.

In a conventional scenario, the devices and systems responsible for managing installations, compressor racks, showcases and cold rooms, lighting, ventilation, air-conditioning and so on operate totally independently from each other, consuming significant quantities of energy. Frequently, needs are divergent and reciprocal effects lead to an increase in costs and a decline in performance. Failures and malfunctions, for example high temperatures, are only identified when the negative effects are already evident and have an impact on food preservation. Repairs thus become more urgent and more expensive, and the food itself, in the worst cases, will no longer be fit for consumption and will need to be discarded (food waste).

With the latest proposal on the market, such as the **Carel Total Store Solution**, all the components in the system are designed to cooperate with each other, for the purpose of achieving the highest possible performance, in real operating

conditions and in response to continuous changes to the systems. Energy consumption is reduced, and food preservation conditions are improved. (note: in a supermarket, around half of the energy consumption is accounted for by cold storage!)



With the boss monitoring systems, the first symptoms of a malfunction are recognised in advance (a key performance indicator), meaning corrective actions can be adopted before the faults become critical, and maintenance operations can be organised more affordably and at more convenient times.

So how can energy be saved while ensuring the best possible food preservation?

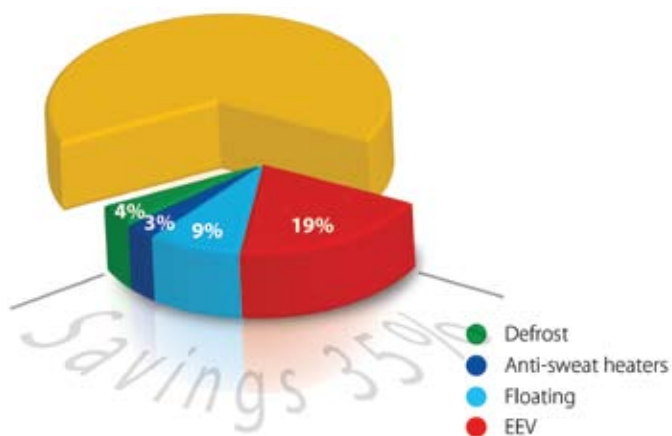
Energy consumption = costs:

Compressor racks are the devices that use the most energy. These systems supply the various units with gas or heat exchange fluid in suitable conditions to remove the required heat.

In a refrigeration cycle, energy consumption increases with the pressure difference between suction (cold side, from the refrigeration unit) and compression (hot side, in general the heat removed from the process).

The combination of advanced hardware with smart logic at compressor rack side (CAREL pRack family) together with the use of electronic stepper valves and dedicated electronic controller at showcase/coldroom side (CAREL ExV & CAREL MPXPRO) provide optimising operation conditions, improve heat exchange into the refrigeration unit and remove excess heat in the most efficient way.

Quite considerable energy savings can be achieved in this way, even up to 25-30%.



Potential savings for refrigeration

Benefits for stored food

Every type of food has an optimum storage temperature and humidity level

- Outside of these parameters, produce tends to spoil quickly, its organoleptic characteristics are altered and a process of deterioration begins that can lead to the food becoming unsafe for consumption.
- The importance of temperature and the effects of time are quite easily understandable.
- The importance of humidity and the moisture content of foods is however not as clear.

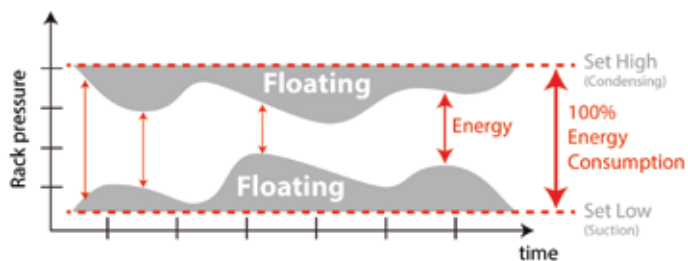
In simple terms, it can be stated that the more the refrigerated air temperature and humidity deviate from the ideal values for the produce, the more this "hygrothermal stress" affects food quality. Even frozen foods, albeit to a lesser extent than fresh produce, are affected by this problem.

The most evolved systems automatically create performance analysis, indicators of deviation from optimum behaviour.

In a traditional system, the refrigerant fluid temperature is fixed in the compressor rack at the value needed by the unit with the highest demand, thus assuming the least favourable cooling load conditions. As a consequence, the system and specifically the evaporators in the cold rooms and on the showcases (heat exchanger coils) always work at a lower temperature than is actually necessary, at higher costs - about 2% more energy for each degree less than needed.

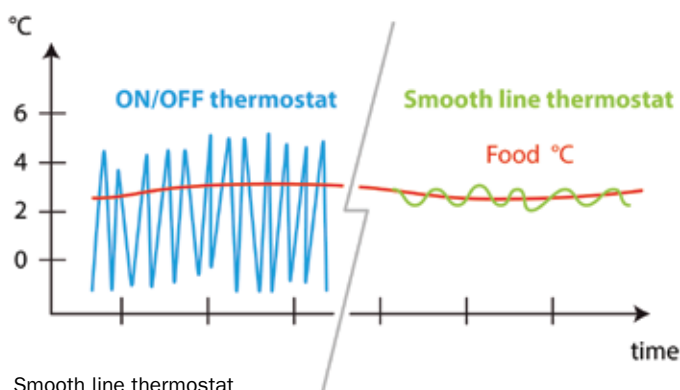
The air is thus cooled excessively, and following a cooling cycle the system switches off in order to return to the set temperature, meaning the produce is subjected to heat-cool cycles with variations of several degrees around the ideal average value.

With the CAREL solution, on the other hand, compressor rack operation constantly reflects the demand of each unit connected, adapting dynamically to real conditions by using



Dynamic adaptation

Inverter DC technology, while the ExV valves on the showcase/coldroom adjust refrigerant flow, and the MPXPRO controllers minimise fluctuations in temperature even in the most critical stages, such as when defrosting or in response to variations in load.



Smooth line thermostat

Food safety and CCPs.

The application of correct HACCP procedures in supermarkets and food industries that use modern control and monitoring system is simplified by the availability of large quantities of useful information, through dedicated functions such as temperature graphs and tables, alarm signals and logs, dash-board and reports.

The most evolved systems automatically create performance analysis, indicators of deviation from optimum behaviour, alarm warnings for system malfunctions or inappropriate use by operators. In other words, all the critical points that may generate situations of risk to the produce and the equipment are managed at the origin.

This increase of food safety and quality does not however imply additional costs, as the savings obtainable in energy consumption mean a very short return on investment. ❄️

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What I want from a Pest Controller

by **Martin Stone,**

Technical Director, HACCP International

I'm sometimes asked if it is mandatory for a food business to use a 'HACCP International certified' Pest Controller in order to comply with various food safety standards. While the answer is 'no', that is probably the only way to be absolutely certain of the contractor's ability (Download the standard which certified suppliers are audited against from HACCP International's website). Regardless, you do need to select a pest controller that delivers the requirements of the food safety management standards you are certified to and one that actively manages food safety risk from their activities.

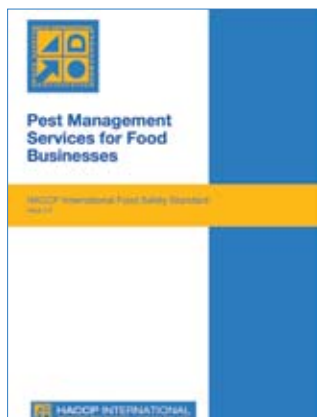
In addition to the pests they are tasked with controlling, pest controllers themselves can pose a significant risk to food safety. There have been contamination events documented where pest control chemicals have contaminated food resulting in consumer illness. Further, I have personally witnessed a pest controller using a residual insecticide directly above an open vat of food resulting in certain contamination of the product stream. Trust me; there are bad guys out there.

So, how does one select the good guys? Well here is a list of elements that the food industry and I would require to be considered during the selection process.

A Defined Service.

The pest controller should be able to define the service offered in terms of;

- The facility areas to be treated
- The treatment methodology including chemicals used (including safety data sheets) and physical devices deployed
- The frequencies of treatment and review
- The technical expertise of the technicians



To download the standard visit the Downloads/Links page of www.haccp-international.com

Documented Procedures.

The pest controller should be able to provide documented procedures or SOPs covering issues such as;

- Standard operating procedures for activities on food sites
- Procedures for chemical handling storage and spills



- A register of chemicals used on site
- How devices are located on site, identified and labelled

Record Keeping and Delivery.

The pest controller should be able to deliver reports contained in a site register in regard to pest control activities such as;

- Service reports including treatments executed including chemicals used, dilution rates and batch codes
- Pest sighting reports
- Site maps with labelled devices
- Pest monitoring records
- Opportunities for improved pest control and proofing
- Client feedback

Risk and Service Management Processes

The pest controller should be able to demonstrate programmes such as;

- Internal audit systems for continued compliance to procedures
- Hand washing policies
- Licensing, insurance and regulatory compliance
- Clothing and jewellery policies
- Procedures in case of food borne illness
- Training in procedures and food safety risk management
- Procedures to mitigate food safety risk in case of errors in applications

These are considered to be key considerations when selecting a pest control contractor that meets the demands of appropriate risk management strategies, the requirements of Food Safety Management Programmes and those of the food industry in general. Each of these elements should be reviewed favourably for a pest controller to be awarded a service contract in the food industry.

Of course, the most effective way to be sure that a pest controller you select is delivering the service the food industry expects, is to choose a supplier that carries the HACCP International certification mark.

Go to www.haccp-international.com to learn more. ❄



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As used in UK and European hospitals, and now fast being adopted in food preparation areas, commercial kitchens, and the food manufacturing industry around the world as well.

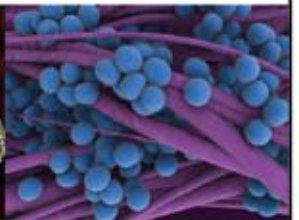


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Is “HACCP”

DISAPPEARING?

By **Richard Mallett**,
Managing Director, HACCP International EMEA

This question, in various guises has appeared in our email inboxes a few times now, from concerned customers, who have heard from sources, including commenters on social media platforms, that “HACCP is disappearing”. Naturally they have expressed concern, not least because they have gone through the process to have products HACCP International certified, as part of a due diligence process, to support food industry, providing materials and products that have been evaluated and found to control or mitigate potential food safety hazards that may arise from their selection and use. This in turn of course supports food industry that manages food safety through a HACCP based food safety management system. So, is it true? Well, in terms of HACCP International and the product certification programme the answer is No!

The broader question is where this information emanates from and whether there is any truth to it in terms of the food industry. HACCP as a food safety management system is not disappearing. It's far too successful for that. The nomenclature and terms surrounding a food safety management programme, are, however, at least to a certain extent.

A reasonable example of this can be found in the latest iteration of ISO 22000, which is now ISO 22000:2018 (the older version being ISO 22000:2005) with the transition period for food industry, that is certified to this standard, to update to the new version, ending in Summer 2021.

Let's take a look inside this standard and see how it addresses the need to identify and control food safety hazards through the HACCP process. The standard, it should at first be noted, aligns very closely with the format of ISO 9001:2015, the deliberate outcome of trying to align some of the world's most commonly used ISO standards. ISO 9001 of course does not specifically address food safety management, so this topic is picked up in ISO 22000:2018, specifically in section 8.2 (Prerequisite programmes) and 8.5 Hazard control. Section 8.5 specifies the requirement to conduct the preliminary steps of describing and understanding raw materials and product,

in the context of potential food safety hazards, intended use (including reasonably expected mishandling and misuse of end product), flow diagram, hazard analysis, selection and validation of control measures and then, crucially, in 8.5.4 “Hazard control plan”. At this point the term “HACCP plan” is combined with “OPRP” and demoted to appearance within brackets after the section title - Hazard Control Plan. This is different to the previous version of ISO 22000 (the 2005 standard), in which section 7.6 was very clearly titled “Establishing the HACCP Plan”.

The same theme here is picked up in the BRCGS Global Food Safety Standard in its 8th issue, wherein section 2 is entitled “The Food Safety Plan – HACCP”. BRCGS, in their key changes document, discuss a slight change in terminology where the Statement of Intent to Section 2 has changed ever so slightly to “The company shall have a fully implemented and effective food safety plan incorporating the Codex Alimentarius HACCP principles”. Their comment on this is as follows: “Some countries (e.g. the US) have introduced regulatory requirements that incorporate all of the HACCP processes outlined by the Codex Alimentarius but use different terminology. The specific terminology within the Standard, such as HACCP, prerequisites or critical control points, are intended to utilise the most commonly used global terminology to describe expectations. Sites are not required to use the specific terminology of the Standard, but are expected to fully meet the requirements”.

We can conclude from two of the most commonly used global food safety standards, that “HACCP” is not disappearing. Why would it? Despite being methodology that's 55 odd years old (with of course improvements in implementation and practice) it still works. Rather, terms being used within the food industry are changing somewhat, and you will not always necessarily hear the term HACCP, but instead may hear HARPC, “Food Safety Plan” or “Hazard control plan”, or similar. The aim and outcome though, in terms of producing safe food and protecting the consumer, is the same, regardless of the terminology used. ❀

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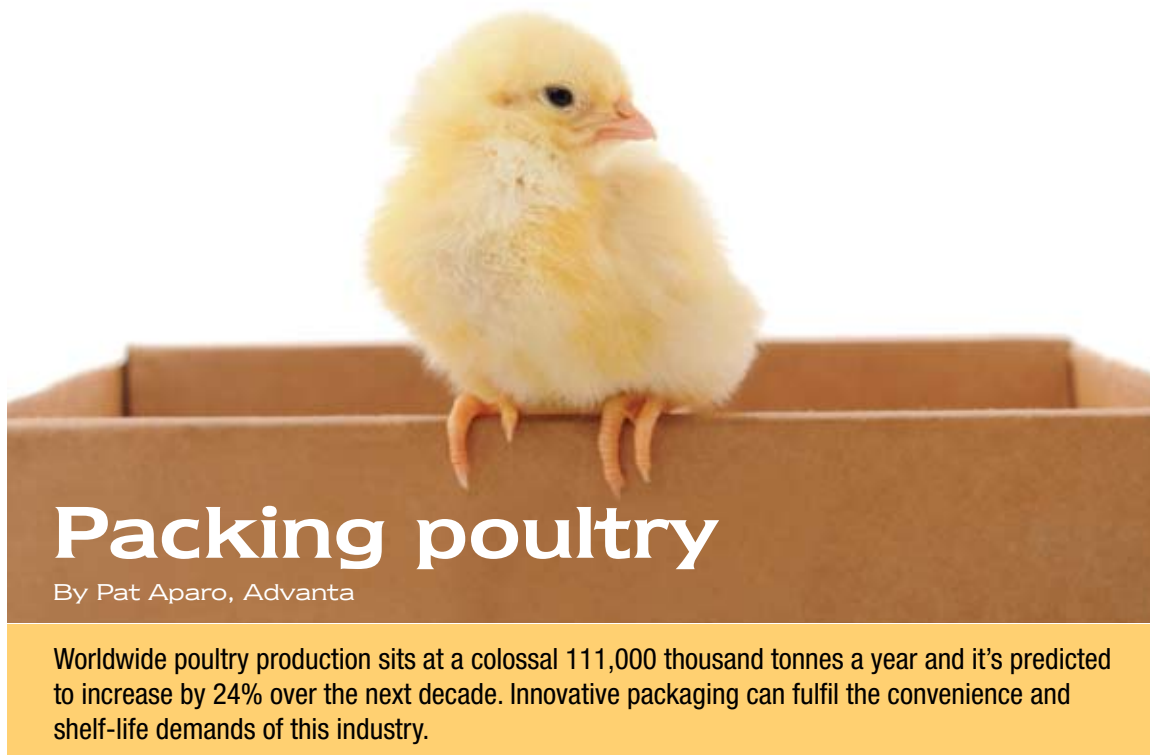
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Packing poultry

By Pat Aparo, Advanta

Worldwide poultry production sits at a colossal 111,000 thousand tonnes a year and it's predicted to increase by 24% over the next decade. Innovative packaging can fulfil the convenience and shelf-life demands of this industry.

Convenience is a key driver in changing what is on the supermarket shelves. This is reflected by the increase of pre-marinated, ready-to-cook chicken products, which consumers can put straight in the oven without mess or fuss. This reliance on convenient food products is not limited to the Western world, but it is a trend that's rising across North America, Europe and Asia.

Globally, ready meals and convenience foods are continually on the rise, especially in rapidly urbanising economies such as South Asia, with increased adoption of packaged food products into new consumer markets. In 2017, Western Europe saw the packaged food market grow by 1.5%, compared with a rise of 1.15% in the United States.

There's no denying the growing demand for packaged food, but what does this mean for the poultry distributors, wholesalers or meal developers? Put simply, poultry packaging requires a rethink.

Despite a reduction of red meat consumption worldwide, the consumption of chicken is continuing to grow. However, the industry is experiencing a shift in the types of products consumers are demanding. Today's consumers are replacing traditional product with newer concepts – think marinated wings, ready-to-cook thighs and chickens infused with new and exciting herbs and spices.

With that being said, what does a change in consumer taste mean for those responsible for poultry packaging? Businesses need to respond and react to these changing demands.

Regardless of the quality or desirability of a product, packaging can have a significant impact on whether the customer will make the purchase. This is particularly relevant for poultry. Generally speaking, today's consumers don't want to touch the chicken before it is cooked. Again, it's about convenience.

By having pre-marinated poultry products in an oven-proof tray, the consumer experiences the least fuss as they move their meal from fridge, to oven, to table. The rhythms of working daily life mean that many people aren't interested in the preparation of meals anymore.

Versatility

For consumers, trays that allow meals to be cooked directly in their packaging means that cooking is a fuss-free affair, but this method also has advantages for retailers. For retailers, robust foil trays allow sleeves and cartons to be lightweight, reducing total pack costs and transport costs. Additionally, trays suitable for use with hermetic seal machines and gas flushing techniques allow for shelf-life extension of poultry products if required.

The gas flushing technique, also known as modified atmosphere packaging (MAP), is a carefully controlled blend of different gases used in airtight packaging to increase the shelf life of food. Typically, this is used with plastic trays or smooth-wall foil trays.

For the consumers, they see versatility from a different angle. Products that can be frozen, cooked on a direct flame and put on the table, all in the same container, are ideal.

The future of poultry packaging will marry consumer convenience and shelf-life extension for retailers. While they are not available on supermarket shelves at present, we are set to see the introduction of skin-packed poultry in chicken-shaped foil trays.

The consumer simply peels off the plastic skin surrounding the poultry, revealing the whole chicken in a foil tray, and placing it in the oven. This combination brings the extended life from the skin-pack plastic, and the convenience of the foil tray, ready to be put in the oven and onto the table.

Consumer demand for convenience and retailers' requirements for longer shelf life are refocusing the priorities in poultry food packaging. As consumption of poultry products continues to grow, packaging manufacturers must ensure their packaging is fit for purpose in this sector.

Whether you're in Asia, North America or Europe, consumer preferences will continue to drive changes in packaging, across all poultry divisions. Packaging may take on new forms over the next decade, as long as consumer demands are embraced. ❄

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Extracting foreign metal fragments from liquid lines



Hygienic and efficient metal fragment control in liquid processes without the limitations of liquid trap magnet systems.

Finger-style inline liquid trap magnets (also referred to as finger pot magnets) are a conventional way of extracting foreign metal fragments from liquid lines such as chocolate, soup, beverages and similar ingredients. They consist of a number of magnetic fingers/cartridges/tubes which are welded to a lid. The magnetic fingers are projected down into the flow and retain metal fragments as the liquid flows in, around and out of the pot magnet housing.

However, such magnetic trap magnets have a number of inherent problems that can have a negative effect on separation efficiency and metal fragment control. Users reported difficulty in handling bulk liquid magnet systems, found the time taken to clean multiple finger bars excessive and had experienced issues with magnet fingers becoming bent or, in some cases, breaking off.

Recognising these problems Magnattack decided to develop a modernised magnetic separation solution for use in liquids.

The solution

After consulting with users who were experiencing these difficulties, Magnattack developed the RE80 Liquid Pressure Pipeline System (PPS). The Liquid PPS features +11,000 Gauss magnet elements, designed to intercept the flow of liquid product lines. The RE80 probes successfully extract

and retain foreign magnetic fragments such as work-hardened stainless steel and stone particles, fine wear fragments and rust.

The Liquid PPS Magnets offer hygienic and efficient magnetic separation and have proven to be a major success in efficiently removing foreign metal bodies from liquid lines in hundreds of applications over many years.

The PPS Systems have been proven effective in a wide variety of applications, some of which include syrups, chocolate, soup, sauce, beverages, viscous pet food slurries, ice-cream manufacturing, cheese processing, pie manufacturing, brine, fruit juice and food paste.

With the development of advanced magnetic separation systems, such as the RE80 Liquid Pressure Pipeline Magnet, the food industry can be assured of the highest level of metal contamination risk reduction without risking important sanitary and food safety considerations.

The systems are certified by HACCP International and are designed in accordance with current food safety standards such as International Food Safety Standard 0909MAGSEP 1-2010.

Liquid Pressure Pipeline System v liquid trap magnets

Cleaning efficiency

Liquid trap magnets present cleaning difficulties due to numerous 1" bars (typically 5–7 fingers). This has often

resulted in contaminants being missed at cleaning intervals and has also made it difficult for operators to detect cracks or fatigue in the magnet fingers.

In comparison, Liquid PPSs feature only two, larger probes, therefore reducing cleaning and downtime. Each probe can be removed individually, ensuring it is able to be fully inspected and cleaned before being returned to the product flow. This system can also be CIP cleaned prior to cleaning of magnets.

WHS/OHS

Liquid trap magnets are often heavy and the entire pot lid must be removed for cleaning. This can potentially result in operator WHS risks. To overcome this, Liquid PPS probes are lightweight and operators need only to remove one probe at a time – therefore reducing the risk of injury caused by handling and lifting heavy equipment.

Leaks and blockages

Liquid trap magnet lids are necessarily large to incorporate multiple bars, so more force over a larger area incurs more lbs per sq inch pressure, which makes them harder to seal than BSM or tri-clamp connections. Most housings are cast stainless steel, which is magnetic. This hinders the entry and exit of the magnets, making it difficult to align for a good seal.

The Liquid PPS offers efficient magnetic separation without leaks, blockage or distortion. Also available within the PPS range is the well proven and patented tear drop probe magnets, that assist in flowability and also minimise bulk density breakdown. BSM or Triclovers seals are used to securely seal probes to the housing, therefore reducing the risk of leakage.

The Liquid PPS Magnets offer hygienic and efficient magnetic separation and have proven to be a major success in efficiently removing foreign metal bodies from liquid lines in hundreds of applications over many years.”

Dead-zones

The ‘dead-zone’ in liquid trap magnets provides a space for contaminants and product to rest – this is often unhygienic and risks magnetic contamination returning to the product flow.

In contrast, the sanitary construction of the Liquid PPS System and high-intensity magnet elements installed at right angles eliminate dead-zone and increase magnetic separation

efficiency with over 80% coverage of product stream as required by Food Safety Standard 0909MAGSEP 1-2010.

Damage

Breakage of magnet fingers is a frequently reported issue. Most liquid trap magnet designs consist of 1” diameter magnet bars welded to the lid. Often, fatigue and accidental dropping of the magnet results in magnet fingers becoming dented, bent or broken.



The risk of damage is minimal in RE80 Liquid PPS Systems. They are constructed using solid structural fixing, larger diameter bars and structural welding techniques to avoid fatigue and breakage. In addition, the PPS comes with 3 years’ warranty on the magnet structural integrity.

Cost-effectiveness

In the case of one magnet finger becoming damaged, the entire pot lid and all fingers on a liquid trap system must be replaced. This can be a costly exercise.

In contrast, the Liquid PPS system is much more cost effective to repair as, in the unlikely event of damage, only one probe would need to be repaired or replaced.

Specialised focus

Magnattack Global technicians concentrate solely on the food, beverage and pharmaceutical industries. This specialised focus ensures that the company is able to provide a current, relevant and knowledgeable source in regards to foreign metal fragment control. ✱



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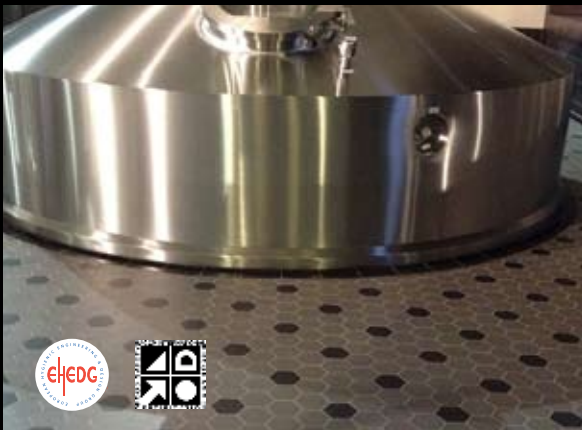
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Food Safety Culture,

from
conceptual idea
to action plan



By Richard Mallett,
Managing Director, HACCP International EMEA



Since 1st February 2019, food processing sites have been audited against the much-heralded new version of the BRC Global Food Safety Standard which is now in its 8th issue. The last half of 2018 saw a flurry of activity as sites busily tried to prepare themselves, accessing any guidance that they could, including the BRCGS Interpretation Guide to this issue of The Standard. The one area which saw many sites scratching their heads, despite the case studies offered in the Interpretation Guide, was how to demonstrate that food safety culture has been measured, and a plan of action put in place to improve food safety culture. In this issue of HACCP International Food Safety Bulletin, we explore what is meant by Food Safety Culture and what mechanisms are important to measure.

Food Safety Culture

Food safety culture is well described in the Interpretation Guide to Issue 8 of the BRC Global Food Safety Standard, which is freely available at the BRCGS global standards bookshop, which states that “a proactive, positive culture within a company can make all the difference in the effectiveness of the food safety and quality plan, and its consistent implementation throughout the site”. Food safety culture requires a top down approach in which senior management lead the way in promoting a good food safety culture, involving all colleagues at their site, so that it is “felt” by everyone. It is about the creation of an ethos that permeates throughout the organisation, in which all members of staff, at all levels, feel involved and proud of the food safety and culture plan, and feel that they own and play a part in that plan. The creation of such an ethos removes the barriers of old in the food industry, which could harm or hinder the food safety and quality plan, where some staff simply could not “see” the reason for food safety and quality, why it was important, and what their part was within it. You can imagine this when

you perhaps think of some of the feelings amongst staff within establishments which do not promote a good food safety culture, with thoughts amongst staff expressed such as:

- My boss doesn't care – as long as I get the job done
- It's all about profit and money here
- I feel afraid to speak up
- I'm not comfortable with this
- There's no point saying anything anyway!

As opposed to an organisation with an implanted good food safety culture, with much better thoughts expressed like these:

- Everyone is respected here
- I'm not forced to do things I'm uncomfortable with
- It's about profit, but they care about safety too.
- I'm really happy to shout if something doesn't seem right
- I can suggest things, and they take notice!

Food Safety Culture Plan

The creation of a food safety culture plan is not quite as easy as 1-2-3! But one must start somewhere, and where better than gap analysis to determine the current food safety culture ethos, which in turn allows for a prioritised plan to begin improving the current ethos. A survey to explore the current standing of food safety culture (the ethos) within these 4 categories is perhaps a good start:

- **People** - exploring empowerment, behaviour, mentoring, encouragement, teamwork and training effectiveness
- **Process** - exploring communication, infrastructure and how this impacts on working lives, access and understanding of the key food safety and quality policies
- **Purpose** - exploring how staff feel about the moral compass of the organisation, ethics and prioritisation of core food safety and quality values
- **Forward planning** - how staff feel they are involved in planning decisions that will affect their roles, how

valued they feel particularly in their growth, training and development

These categories are described in a Campden BRI White Paper on the matter and indeed those members of that organisation may opt to subscribe to the third-party scheme endorsed by that organisation. Some food businesses however are not members and may not have the finances to do that. In this case the work needs to be done in-house. This takes some thought but is not an insurmountable challenge. Questions could be generated under these four categories to explore how staff feel about their organisation. This is not that difficult with a bit of thought behind it. To illustrate this, a few example questions, for the first category (people) is presented below. Following a similar process, several questions could be established per category:-

- How confident are you about what is expected of you in your job?
- How constructive do you think training is, in terms of making a lasting impact and helping you to make changes where needed?
- How involved do you feel in your team?

This could be implemented as a paper or electronic questionnaire that staff can complete, anonymously. It is useful to ask people to rate their answers perhaps on a 1 to 5 scale from 1 (this aspect is very bad for me) to 5 (this aspect is strong for me). Scoring turns this from a qualitative to a quantitative exercise.

People do not like to feel under undue pressure, as it may influence their answers, or indeed whether they feel like

completing the questionnaire at all. It is important to provide them with a cover of anonymity, should they so choose it. This means allowing surveys to be completed anonymously and submitted to someone who is not their direct manager. For some staff, this might perhaps be the receptionist, or canteen manager, with their agreement of course, or even an outside consultant.

Once collected, either from all staff, or a representative percentage of the workforce, then the job of analysis begins. An organisation can identify where an aspect scores poorly overall and then set about developing an action plan for this. From the example questions above, imagining a poor overall score for "How involved do you feel in your team", an action plan may consist of team building exercises or improved communications between the members of a team, and indeed between teams. As in any corrective and preventive action plan there is a need to gain senior management commitment to instigate the improvement, to have someone manage each improvement project, to set a timescale and, importantly, to set a measure of success – this may be a short survey (think of a conference or training course feedback form). Section 1 of the BRCGS Global Food Safety Standard requires senior management to commit to quality objectives. This mechanism could be used for the setting of culture objectives, accepting that, as described in the BRCGS Interpretation Guide, a food safety culture plan and the actions arising from that, do not need to be an annual event. It may be a 3 or even 5-year strategic plan. However long an organisation decides that strategic plan will be, one thing is for certain, food safety culture is here to stay. ❁



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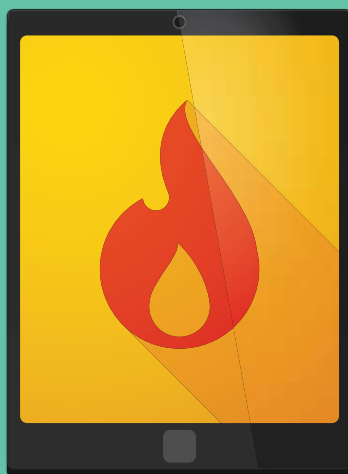


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HACCP Laundry seminars and/or get
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HOT LINKS

Recalls, Outbreaks and Emergencies

www.fda.gov/food/recalls-outbreaks-emergencies

This site provides information regarding the measures FDA takes when a food product is mislabeled, presents a health risk because of contamination, or has caused an outbreak of illness. The site also provides information regarding the safe storage, use, and disposal of food during public health emergencies.

Food Safety Authority of Ireland

www.fsai.ie

The Food Safety Authority of Ireland (FSAI) was established under the Food Safety Authority of Ireland Act, 1998. This Act was enacted in July 1998 and came into effect on 1st January 1999. The principal function of the Food Safety Authority of Ireland is to protect consumers and raise compliance through partnership, science and food law enforcement.

World Health Organization

www.who.int/foodsafety/en/

Foodborne disease outbreaks have devastating health and economic impacts everywhere. WHO works to ensure that the food we eat is safe and nutritious all over.

Food Safety Daily News

www.foodhaccp.com

Worldwide sourced articles on everything to do with food safety. An amazing collection of news updated daily. Better than a daily paper for a food nerd! A great start to any day.

The International Food Information Council

www.foodinsight.org

The International Food Information Council (IFIC) Foundation is dedicated to the mission of effectively communicating science-based information on health, nutrition and food safety for the public good.

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HAND HELD

THERMOMETERS

by **Martin Stone**,
Technical Director,
HACCP International



Digital thermometers from a reputable supplier are an essential monitoring tool in most food facilities. Many Critical Control Points (CCPs) are monitored by temperature checks and this is because heat (or the lack of it) is used to kill or control the growth of micro-organisms.

Modern thermometers are electronic and feature microprocessor driven probes or even detectors capable of reading infrared radiation, but around 300 years ago temperature measurement as a science was in its infancy. In 1714 Daniel Gabriel Fahrenheit invented the mercury in glass thermometer and went on 10 years later to develop the temperature scale that bears his name. Fahrenheit used three reference temperatures to form his scale. Firstly, he assigned a frigorific mixture of salt, ice and water at 0. The temperature that ice started to form on fresh water was assigned 32 and the temperature of his underarm was assigned 96. The freezing point to boiling point of water was divided in 180 degrees and the Fahrenheit scale was born!

In 1742 Anders Celsius developed a new scale that would go on to be used by almost the entire world and be designated as an SI unit. Celsius assigned the melting point of ice the unit 100 and the boiling point of water at 1atm to be 0. He then divided these reference points by 100 to invent the Centigrade scale. Centigrade is derived from the Latin for hundred steps. A year after Celsius's death in 1745, the scale was reversed such that 0° represented the melting point of water and 100° the boiling point. This represents a common calibration method for Celsius thermometers to this day.

Today there are hundreds of different thermometers available and some of the considerations for selecting a thermometer for your food business include the following.

Type. The first choice is one of digital vs analog. 'Analog' instruments include the traditional mercury in glass and also the bi-metallic or dial thermometers. Never use mercury in glass or alcohol in glass thermometers anywhere near food.

Breakages can cause toxic chemicals and glass to enter food. Dial thermometers have low accuracy, are somewhat difficult to read with precision below a degree and are easily shocked out of calibration. Really, for food processing applications, a digital thermometer is a must and can offer easy to read precision resolution, accuracy and a robust construction.

Subtype of digital. Thermocouple or thermistor/RTD or IR is a choice the purchaser needs to make based on intended usage. Thermocouples typically have a wider range, are easily calibrated and offer flexibility in use such as being able to insert the junction tip into a can during processing. Thermistors are common, cost effective and accurate. Good quality thermistor



thermometers rarely go out of calibration and can be purchased with a wide variety of probe types for different applications. RTDs are accurate across a larger range but can be difficult for field (factory) calibrations. IR Thermometers are contactless and useful for applications where a probe or direct contact is not practical. A value is resolved rapidly but these instruments have

limitations such as only measuring the temperature of the surface, not being simple to calibrate and opportunity for incorrect reading because of reflections of IR radiation from non-target sources.

Probe. The probe should be made of stainless steel and of a suitable length for the application. As these are typically hand held units, the purchaser must consider how

FACTERIA

Norovirus

Unlike previous editions of Facteria, this issue does not describe a pathogenic bacteria but rather a virus group known as Norovirus.

Other names have previously been used to describe this agent including 'stomach flu', 'Norwalk (like) Virus' and the descriptive 'viral gastroenteritis'. It is probably the most highly contagious infecter known which causes food borne illness with an infective dose as low as one virus.

It is likely that 90% of all viral gastroenteritis outbreaks and perhaps 50% of all food borne illness are due to infection by Norovirus. The cost associated with the disease is obviously massive. Infection occurs when Norovirus enters the mouth through either infected food, contact of infected surfaces with hands which then touch the mouth, by breathing the aerosol virus or contact with an infected person. The virus travels to the small intestine where it multiplies rapidly causing an onset of symptoms in around 24 hours (range 12 – 48 hours).

Symptoms include vomiting, diarrhoea, stomach cramps, fever like symptoms and general lethargy. Onset is rapid and it is not unusual for patients describing being fine one minute and violently ill the next. Symptoms persist for 24 – 48 hours and most make a full recovery after this time. Vulnerable populations can demonstrate more severe symptoms and outcomes.

Outbreaks of Norovirus are often observed in closed populations such as nursing homes, cruise ships, overnight camps and prisons where infected persons rapidly pass the illness onto others. One study suggested that a person carrying the virus infected an average of 14 others so the potential to overwhelm a closed population in a short period of time as an epidemic outbreak is significant.

The virus is easily killed with heat and chlorine based sanitisers. Alcohol based sanitisers (like some hand cleansers) are not effective. High levels of hand hygiene and personal hygiene are required to limit the spread of the disease. Those suffering the symptoms should not prepare or handle food for others for at least 48 hours after symptoms cease. After this time, the virus is still present in low numbers for several weeks, so control can only be affected by high levels of personal and hand hygiene.

Norovirus...the number one individual cause of food borne illness outbreaks and an agent that we will hear a lot more from as our knowledge of viruses deepens. ❄

close they want their hand to be to the test when conducting a measurement. For example, if measuring the temperature of a large boiling vat of food, a longer probe will be safer and easier to use than a shorter probe. Probes attached to the thermometer via a cable can be easy to use in certain applications compared to a fixed probe unit. The strength

of the probe is also a consideration when measuring hard substances such as frozen foods. Specially designed and super-robust probes can be obtained for boring into solid foods. Other probes can be obtained for measurement of surface temperatures and other specialist applications.

Housing. A waterproof and cleanable housing is strongly recommended for food applications. Smooth surfaces will provide for effective cleaning...after all, the thermometer could be considered a food contact surface. A robust housing will help to prevent damage to the instrument from the inevitable drops and shocks they will receive when used in food processing application. Avoiding glass components or anything that can break off the unit and become a contaminant is prudent for food applications.

Features. Quality brands offer a range of useful features such as reading hold, memory, stabilisation hold, Hi/Lo memory, duel probe/IR and downloadable/IoT options to name a few. All are useful and can assist usability in different applications. Make sure the readout is legible in different light situations and consider requirements in either dark or extremely bright applications.

Accuracy and resolution. Both are determined by application but for a general-purpose thermometer a resolution of 0.1 degrees and a matching accuracy in the target temperature range is considered adequate. Where temperature measurement of Critical Control Points is required, higher levels of accuracy and resolution may be required.

Typically, as part of your Food Safety Management Programme, you will need to calibrate your thermometers on a routine basis. This may include benchtop calibration by the instrument manufacturer or comparison to a reference thermometer over a number of temperatures in the target usage range. Check the instrument manufacturer recommendations in this regard. Of course, in the field (factory), the methodology developed using ice water and boiling water by Anders Celsius some 300 years ago is still the easiest, most common and effective method.

Instruments that have been certified by HACCP International display all characteristics as recommended in this article. ❄



Is nutrition labelling working?



Before we can assess whether or not nutrition labelling is effective we have to ascertain what we want from the labelling.

At a basic level nutrition labels are intended to guide the consumer in selecting food that promotes public health. The information provided should be truthful, not mislead the consumer and be consistent with dietary recommendations.

How do we measure if this is happening? Is it enough that the information on all food labels is accurate and understood by consumers? Well no. Surely to say nutrition labelling is effective we should see improvements in public health.

Questions that need addressing

- Do consumers make long-term healthier food choices as a result of having used nutrition information on food packaging?
- To what extent do nutrition labelling schemes have to be standardised to help consumers cultivate healthy eating habits? Research by FLABEL, EUFIC and the Surrey Food Consumer Behaviour and Health Research Centre in Europe and by the Australian Heart Foundation in Australia suggests that different labelling schemes can be equally effective in helping consumers identify healthy options, yet many groups assert that standardised nutrition labels are imperative.
- Is nutrition labelling beyond packaged foods useful? The menu labelling debate has moved beyond the United States to Canada, the UK, Ireland, Australia and Asia. Menu labelling research has proliferated in recent years but is limited chiefly to Europe, North America and Australia.
- How can new technologies best be used to encourage healthy food choices? Research shows that online shopping is here to stay but consumers are less likely to check nutrition information online than in-store.

Overview of the global state of play for nutrition labelling

The European Food Information Council (EUFIC), in collaboration with Landmark Europe and input from several nutrition organisations across the world, has just released the 2018 edition of the 'Global Update on Nutrition Labeling'. This report provides a comprehensive overview of the state of play on nutrition labelling today.

The report looks into:

- What are the major nutrition labelling initiatives adopted or in the pipeline to date?
- How do they work and what do the various stakeholders say?
- Where is the debate heading?
- What does the research show?

The key takeaways from the 2018 edition are the following:

- A global proliferation of nutrition labelling initiatives, both public and private, is underway. While labels using stars and positive logos are popular in the Asia-Pacific region, South American countries are increasingly opting for health warnings. Positive logos continue to be favoured in Asia, Africa and North and Eastern Europe, while traffic lights are gaining ground in western Europe.
- Policy decisions should be based on science: the key question is how appropriate and meaningful nutrition information can be provided on the food label so that motivated consumers can act on their desire to improve their diets. There is great interest among stakeholders and the research community in the potential of nutrition labelling to guide consumers in their product choices so as to enable them to adopt more balanced eating habits. In this respect, it is clear that what matters is the overall diet, not the consumption of an individual product.
- The EU's adoption of a harmonised format for FOP labels and national-level schemes in the UK and France have made it clear that government backing is needed to support a scheme's credibility, while at the same time raising the question of how such schemes might impact international trade.
- Nutrition labelling policy should take into account consumer use, interpretation and understanding of different nutrition labelling schemes, but ultimately it is the impact on purchasing decisions and overall diets that matters. The consumer research section of this report showed that these factors vary from country to country and between consumer segments. Most research on FOP formats has been conducted in Europe, North and South America, Australia and New Zealand. Given the potential for variance, studies in other regions are needed to understand better local consumer attitudes.
- Nutrition labelling debates are often informed more by value judgements of what consumers like than research on what is effective in influencing consumer choices. Some studies show that judgement of nutritional quality labels, GDA-based labels and health logos have a sizeable impact on consumers' preference and intention to purchase a product. This data is backed by consumer studies in Europe and Australia which confirm that different labelling systems can be equally effective in helping consumers identify healthier options, although other studies show no short-term effect on purchasing decisions.

The full report is available on the EUFIC website. ✱

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FACT



This product is food safe

The HACCP International certification and endorsement process supports organisations achieving food safety excellence in non-food products, material, consumables and services that are commonly used in the food industry. HACCP International's Certification is particularly aimed at those organisations that are required to supply 'food safe', 'compliant' or 'approved' products and services to their food safety conscious customers.

Such products or services are usually those that have incidental food contact or might significantly impact food safety in their application. Food safety schemes, particularly the leading ones which are GFSI endorsed, require food businesses to subject many such products to an auditable 'due diligence' process and the HACCP International certification is designed to meet this. This independent assessment and verification of fitness for purpose offers assurance to the buyer or user that food safety protocols and processes will not be compromised in using such a product or service correctly, that such a product is 'fit for purpose' and that it makes a contribution to food safety in its application.

Certified products have been rigorously evaluated by HACCP International'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, as well as being highly qualified, also 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 multiple industrial applications.

There are 10 key components reviewed in this process and certified products need to demonstrate their conformance in all the relevant facets. The ten key components are:

- 1** *Materials and specifications*
- 2** *Toxicity*
- 3** *Contamination risks*
- 4** *Ease of cleaning*
- 5** *Operating instructions*
- 6** *Consequences of error*
- 7** *Batch and process controls*
- 8** *Claims*
- 9** *Packaging and labelling*
- 10** *Contribution to food safety*

In addition to these, service providers are also assessed, through an audit process, in terms of:

- HACCP and food safety awareness
- Food Safety Training
- Documentation and reporting
- On site service delivery
- Standard Operating Procedures

HACCP International is accredited by JAS-ANZ as a conformity assessment body. JAS-ANZ is a member of The International Accreditation Forum (IAF). HACCP International operates an accredited product certification scheme, titled "Food Safety Assurance", as well as other product certification schemes.

The companies listed on page 25 carry a range of excellent food safe products or services certified and endorsed by HACCP International. For more details, please visit www.haccp-international.com or email info@haccp-international.com. The contact numbers for our regional offices can be found on page 3 of this bulletin. ❄

www.haccp-international.com

HACCP INTERNATIONAL CERTIFIED SUPPLIERS

For a full list of certified companies and products visit the registers on our website.

CLEANING PRODUCTS | PROCESS
CATERING & FOOD SERVICE EQUIPMENT & UTENSILS
 CLEANING EQUIPMENT
 CLEANING CHEMICALS
KITCHEN MATERIALS & SANITATION PRODUCTS
 CLEANING & MAINTENANCE SERVICES TO THE FOOD INDUSTRY
 CLOTHING, DISPOSABLE GLOVES & PROTECTIVE WEAR
 FACILITY FIXTURES, FLOORING & FIT OUT

HITACHI CHEMICAL (I)
 HOSHIZAKI (I)
 KEEPLASTICS AB (I)
 LANCER CORPORATION
 SIX SIMPLE MACHINES
 CHAMPION GROUP INTERNATIONAL LTD (I)
 GLOBAL-TEK (SINGAPORE) PTE LTD (I)
 GOLDSTEIN ESWOOD COMMERCIAL
 PRO-WELL STANDARD INC
 SOAKTECH
 3M (I)
 BAXX (I)
 CHAMPION GROUP INTER.LTD (I)
 CLOROX
 SJ JOHNSON PROFESSIONAL (I)
 ELPRESS B. V. (I)
 ESSITY HYGIENE & HEALTH
 ESSITY PROFESSIONAL HYGIENE NORTH AMERICA LLC (I)
 KIMBERLY-CLARK PROFESSIONAL (I)
 KURARAY KURAFLEX (I)
 WEB-PRO CORPORATION (I)
 ACE FILTERS INTERNATIONAL
 CHALLENGER SERVICES GROUP
 INITIAL HYGIENE
 HICARE INDIA
 LOTUS FILTERS
 ABURNET (I)
 KIMBERLY-CLARK PROFESSIONAL (I)
 LIVINGSTONE INTERNATIONAL
 PARAMOUNT SAFETY PRODUCTS
 PELGAR INTERNATIONAL
 PRO PAC PACKAGING
 RCR INTERNATIONAL
 ULTRA HEALTH MEDICAL
 AIR-WOLF GMBH'S
 ALLNEX NZ
 ALTRO SAFETY FLOORING & WALLING (I)
 AM TECHNOLOGY - AIRLITE (I)
 ARDEX MANUFACTURING SDN BHD
 ARGELITH BODENKERAMIK (I)
 ASSA ABLOY ENTRANCE SYSTEMS
 BEST CRETE (M) SDN BHD (I)
 BLUCHER (I)
 BLUE SCOPE STEEL (I)
 CARONA GROUP
 CEMKRETE/MFRP ENGINEERING (I)
 DEFLECTA CRETE SEALS
 DYSON AIRBLADE (I)
 ECOSTEP S.R.O.
 ELECTROLUX PROFESSIONAL (I)
 ELECTROSTAR GMBH'S
 ELPRESS (I)
 ESTOP FLOORING SYSTEMS
 FLOORCHEM ASIA (I)
 FLOWCRETE (I)
 FOSROC SUPPLY FZE
 FW3 HOLDINGS LTD

CLEANING PRODUCTS | PROCESS
FACILITY FIXTURES, FLOORING & FIT OUT
CONTINUED
 LABELS - FOOD GRADE
 MAGNETS
 MANUFACTURING EQUIPMENT COMPONENTS & CONSUMABLES
 PEST CONTROL EQUIPMENT & MATERIALS

GENERAL MAT COMPANY & IDENTITY MATTERS
 GIF ACTIVEVENT (I)
 GREEN DRAIN (I)
 GREENFLOOR INNOVATIONS CORPORATION
 HALTON (I)
 HANECO
 HAWK CONCRETE FLOOR COATINGS
 ITALCHIMICA (I)
 IVAS SPA
 JET DRYER
 KCC PAINTS SDN BHD
 KRETOP INTERNATIONAL SDN BHD
 MC BAUCHEMIE (MALAYSIA SDN BHD)
 MITECH
 MPM SRL
 OVERSEA SPECIL CIVIL WORKK CO. LTD
 PROJECT MANAGEMENT & TECHNICAL RESOURCES CORPORATION
 SANICUS
 S POWER PLUS GROUP CO. LTD
 S & G INDONESIA (I)
 SEALBOND CHEMICAL INDUSTRIES INC.
 SIKA (I)
 SILIKAL (I)
 SODEX HEXOTOL S.A.S.
 SPL LIMITED'S
 STONHARD (I)
 TECHNOLOGIA INTERNATIONAL S.A.
 THORN LIGHTING
 UCRETE-BASF CONSTRUCTION CHEMICALS (I)
 UNIVERSAL FOOD SERVICE DESIGN
 US VIET NAM JOINT STOCK COMPANY
 VIACOR (I)
 YOUNGSAN (I)
 YUE PO ENGINEERING (I)
 ZUMTOBEL
 ABACUS INDUSTRIES
 LABEL POWER
 W W WEDDERBURN
 AURORA PROCESS SOLUTIONS
 INDUSTRIAL MAGNETICS (I)
 MAGNATTACK GLOBAL (I)
 CRC INDUSTRIES
 ITW POLYMERS & FLUIDS
 KADANT (I)
 LANOTEC
 SICK
 WURTH
 BASF (I)
 BAYER (I)
 BELL LABORATORIES
 ECOLAB
 LODI GROUP (I)
 PELGAR
 PEST FREE AUSTRALIA (I)
 RENTOKIL INITIAL PLC (I)
 STARKEYS PRODUCTS (I)

(I) indicates that the company offers products or services with global or regional certification. Others have national certification in one or more countries.

KURAFLEX™ COUNTER CLOTH

Quick drying and easily cleaned, so it's difficult for bacteria to multiply.
KURAFLEX COUNTER CLOTH is a hygienic wipe made of rayon nonwoven fabric.

For table



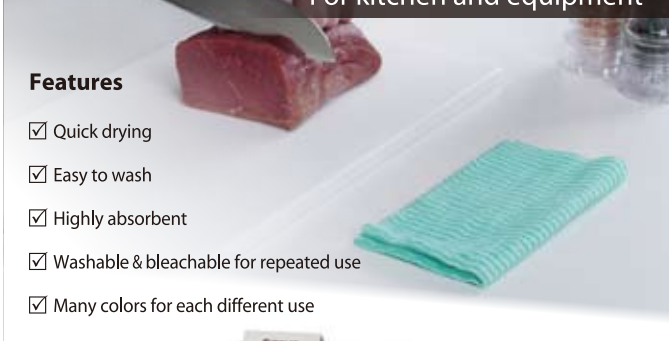
For drying



For tableware



For kitchen and equipment



Features

- ☒ Quick drying
- ☒ Easy to wash
- ☒ Highly absorbent
- ☒ Washable & bleachable for repeated use
- ☒ Many colors for each different use



MADE
IN
JAPAN

Product list

Type	Size (cm)	Package	Colors						Field
			White	Pink	Green	Blue	Yellow	Orange	
ZO-600-100	35 x 61	100 pcs/box x 6 boxes = 600 pcs/carton	○	●	●	●			Cafe, Fast food shop
ZR-600-50	61 x 61	50 pcs/box x 6 boxes = 300 pcs/carton	○	●	●	●			Supermarket
ZO-1000-60	35 x 61	60 pcs/box x 6 boxes = 360 pcs/carton	○	●	●	●	●	●	Restaurant, Cafe, Convenience store
ZR-1000-30	61 x 61	30 pcs/box x 6 boxes = 180 pcs/carton	○	●	●	●	●	●	Supermarket, Food processing facility
XO-1000-50PW	35 x 34	50 pcs/pack x 12 packs = 600 pcs/carton	○	●	●	●			Restaurant, Cafe, Fast food shop

※ Constituent fiber : Rayon 100%

kuraray

Kuraray Kuraflex Co., Ltd.

1-1-3, Otemachi, Chiyoda-ku, Tokyo 100-0004, Japan
TEL : +81-3-6701-1390
8-1, Kakudacho, Kita-ku, Osaka 530-8611, Japan
TEL : +81-6-7635-1560
<http://www.kuraflex.com/en/>



HACCP INTERNATIONAL CERTIFIED SUPPLIERS

PEST CONTROL EQUIPMENT & MATERIALS CONTINUED

SUMITOMO (I)
SYNGENTA (I)
WEEPA PRODUCTS
ZAPIA SPA (I)

PEST CONTROL SERVICES

AMALGAMATED PEST CONTROL
CPM PEST & HYGIENE SERVICES
ECOLAB
FLICK ANTICIMEX
HICARE
RENTOKIL
SCIENTIFIC PEST MANAGEMENT
WG GENERA PACIFIC (FIJI)

REFRIGERATION, GOVERNORS, EQUIPMENT & DATA SYSTEMS

EPTA (I)
CAREL (I)
DANFOSS (I)
WURM GMBH & CO. KG ELEKTRONISCHE
SYSTEME (I)

STORAGE EQUIPMENT & PACKING MATERIAL

RCR INTERNATIONAL
SCHUETZ

THERMOMETERS, PH METERS & DATA LOGGERS

3M
TESTO (I)
WURM GMBH & CO. KG ELEKTRONISCHE
SYSTEME (I)

TRACEABILITY

GS1

(I) indicates that the company offers products or services with global or regional certification. Others have national certification in one or more countries.



INDUSTRIAL FLOORING

ISO 9001 & 14000 AND HACCP CERTIFIED

Flooring is our core business. With over 1,000,000,000 sq m of products spread in the Asia Pacific region,
nothing is impossible with Cemkrete.



Kimberly-Clark

PROFESSIONAL™

We have collaborated with food companies around the world and have seen the challenges you face first hand.

Our B.L.U.E. Line



BUILT FOR FOOD
TASKS



LAB TESTED



UNIVERSAL
CERTIFICATION



EASILY
DETACHABLE

CLEANING & WIPING



WYPALL Essential Task

- Suitable for contact with foods
- Food Zone Primary (FZP) endorsement from HACCP International



WYPALL Color Coded Wipers

- Reduces cross contamination
- Food Zone Secondary (FZS) endorsement from HACCP International

SAFETY & PROCESS PROTECTION



KLEENGUARD G10 Flex Nitrile Gloves

- Latex and powder free
- Food Zone Primary (FZP) endorsement from HACCP International

Endorsed by





Ucrete® flooring forms a dependable part of daily operations in your facility. The food industry places high demands on hygiene, personnel safety and production up-time. Only Ucrete resin flooring has 50 year's proven track record in the food and beverage industry. We invented a floor you can rely on – for your products, your customers and your employees.

50
YEARS OF
Ucrete

50 Years
of Excellence
in Flooring



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