

what's **new** in  
**Food**  
technology & manufacturing



Find out how to process  
all foods and drinks  
at Foodtech Packtech

PP100007395



# In house Engineering

Design/Supply/Install industrial and commercial refrigeration systems to the Food/Agriculture/Horticultural/Logistics/Chemical/Pharmaceutical industries (30 years' experience).



Refrigeration Services (VIC) Pty Ltd — ABN 19 099 915 830

12 Enterprise Way, Sunshine West VIC 3020  
T +61 9314 4713 | F +61 9314 4720  
[www.refrigerationservices.com.au](http://www.refrigerationservices.com.au)



## 4 food for thought

- 4 Why artificial sweeteners can increase appetite
- 12 Better protection from unfair contracts for small businesses afoot
- 18 Make a splash at the drinks industry show



## 19 bulk handling, storage & logistics

- 20 Ratholes and flow challenges
- 22 A fresh approach to modernising IT
- 41 Brexit and the UK food and beverage industry



## 45 packaging, labelling & coding

- 56 Machine vision for the food and beverage industries
- 62 Fine Food Australia promises flavour, fun and firsts



## 65 testing

- 66 Keeping control of ice-cream colour
- 74 Stopping biofilms before they start
- 77 Welding and hygiene
- 83 Controlling moulded chocolate thickness
- 88 Are your cleaning tools clean?
- 96 Selecting the best heat exchange solution for food pasteurisation



## 71 processing

- 103 Maintaining large HACCP plans
- 112 Foodtech Packtech
- 116 Automation reaches cauliflower harvesting
- 118 Marketing mangoes
- 120 Heat process adds weeks to the shelf life of milk



**READ  
ONLINE!**

*This issue is available to read and download at [www.foodprocessing.com.au/magazine](http://www.foodprocessing.com.au/magazine)*

# Why artificial sweeteners can increase appetite

Adam Florance

**As well as promoting hyperactivity and insomnia, a new study co-led by the University of Sydney has found that artificial sweeteners actually increase feelings of hunger leading to higher calorific intake.**

**T**his is not the first time a link between artificial sweeteners and increased hunger has been suggested, but this new research has identified the brain system that regulates response to sweetness in both insects and mammals.

The first phase of the research was conducted at the Charles Perkins Centre at the University of Sydney. Researchers laced the diet of fruit flies with artificial sweetener and found that after prolonged exposure they consumed 30% more calories when their natural diet was reintroduced.

University of Sydney's Associate Professor Greg Neely stated: "We found that chronic consumption of this artificial sweetener actually increases the sweet intensity of real nutritive sugar, and this then increases the animal's overall motivation to eat more food."

The researchers determined that the brain's reward centre recalibrates the perceived ratio of energy content to sweet sensation when the sweetness to energy ratio is out of balance for prolonged periods.

Professor Neely said: "Using this response to artificially sweetened diets, we were able to functionally map a new

neuronal network that balances food's palatability with energy content. The pathway we discovered is part of a conserved starvation response that actually makes nutritious food taste better when you are starving."

The second phase of the study was designed to determine if the neuronal pathways observed in fruit flies are also relevant to mammals. Professor Herbert Herzog's team at the Garvan Institute of Medical Research exposed mice to a sucralose-sweetened diet for seven days. The mice displayed remarkably similar results to the fruit flies, confirming the same neuronal pathway was involved in regulating overall calorie intake.

Professor Herzog said: "These findings further reinforce the idea that 'sugar-free' varieties of processed food and drink may not be as inert as we anticipated. Artificial sweeteners can actually change how animals perceive the sweetness of their food, with a discrepancy between sweetness and energy levels prompting an increase in caloric consumption."

This research was published in the journal *Cell Metabolism*. 

# PURE EFFICIENCY

**NSF** Premium  
No-Tox<sup>®</sup>  
Food Grade  
Lubricants

Increase Efficiency & Reduce Operating Costs

Reduce Wear & Extend Component Life

Multiple Lubrication Capabilities

SAVE Time SAVE Money



Bel-Ray's high-performance industrial Food Grade greases and oils are specially engineered to withstand the effects of load, heat, water and dust. Maximize performance and reduce downtime by using superior lubricants from Bel-Ray<sup>®</sup>.  
**SEE THE ENTIRE LINE OF BEL-RAY<sup>®</sup> PRODUCTS AT BELRAY.COM**



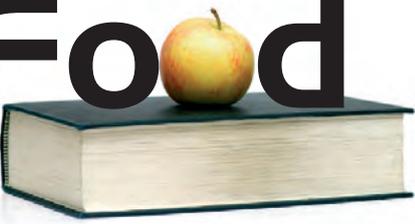
© 2015 Bel-Ray<sup>®</sup> Company, LLC



Contact us for a **FREE** onsite lubricant survey.

# Food

FOR  
thought




## Fresh veg imports not as common as we think

An education campaign may be needed, with research showing Australians significantly overestimate the proportion of imported fresh vegetables available on supermarket shelves.

The Project Harvest consumer research study, commissioned by Horticulture Innovation Australia, showed that more than 40% of Australians believe at least a third of fresh vegetables at their local store are imported, while statistics show the true figure to be much lower.

“The Australian vegetable industry had a gross value of production of \$3.3 billion in 2014–15, while the total value of all fresh vegetables imported into Australia over the same period was \$78 million — only 2.3% of Australia’s value of production of vegetables for human consumption,” said AUSVEG spokesperson Shaun Lindhe.

“While local growers are facing heavy competition from cheap imports, right now these imports are mostly processed vegetable products or vegetables imported for processing. The vast majority of fresh vegetables available in stores comes from Australian growers.”

The Project Harvest study has also found that the misperception was even more prevalent among younger consumers, with shoppers aged 18–35 more likely to overestimate the availability of imported produce than the average consumer.



## Cut *Salmonella* by 90% in minced meats

Researchers at the University of Nevada, Reno are claiming their technology can reduce the *Salmonella* load in minced meats by 90%.

The team, led by Assistant Professor Amilton de Mello from the College of Agriculture, Biotechnology and Natural Resources, is using bacteriophages to achieve the *Salmonella* reduction.

Bacteriophages are natural bacteria predators that can eliminate bacteria without any other consequences for the product.

Bacteriophages from the *Myoviridae* family are lytic, rather than temperate, and so can function as a therapy for bacterial diseases in humans and other animals.

De Mello’s research treated meat products infected with four types of *Salmonella* by applying *Myoviridae* bacteriophages during mixing. Bacteriophages are commonly found in our environment. They are viruses that can only harm specific bacterial cells and are harmless to humans, animals and plants.

In the experiments, the *Salmonella* bacteria was inoculated on refrigerated meat and poultry trim, then the treatment was applied to the meat before grinding. The bacteriophages invaded the cells of the bacteria and destroyed them.

“On the final ground meat products, there was a 10-fold decrease of *Salmonella*,” de Mello said. “The results are very encouraging and we’re hoping this can be adopted by the meat industry to increase food safety.”

## Registrations have opened for the 2016 Australian HACCP Conference

The 23rd will provide delegates with a comprehensive body of information on emerging issues and best practice for food producers, suppliers and retailers. The two-day conference is being held at the InterContinental Melbourne — The Rialto on 5 and 6 October.



Image courtesy of Skitterphoto (via Pixabay) under CC0 Public Domain

With the theme ‘integrity + innovation’, this year’s conference will cover lots of interesting topics:

- Maintaining consumer and regulator trust across the global supply chain
- Innovations in food safety
- Technological advances that contribute to food safety
- Practices and procedures shaping approaches to food safety
- Transforming food safety culture within organisation
- Upcoming threats and issues facing food safety professionals
- What is on the horizon? Where is the industry headed?

This year’s keynote speaker is Hugh Pennington, who was acting as chair of the inquiry for the Secretary of State for Scotland into the 1996 *E.coli* O157 outbreak in central Scotland and the Public Inquiry into the 2005 South Wales *E. coli* O157 outbreak. The program will also feature a range of other global and local leaders.

Register now at <http://australianhaccpconference.com.au/registration/>.

## Accessible Design course heads to Foodtech Packtech 2016

The Australian Institute of Packaging (AIP) will be running a half-day training course on accessible packaging design. The Accessible Packaging Design: Easy to Open, Easy to Use course, held in October in Auckland, New Zealand, will coincide with Foodtech Packtech 2016.

Accessible design and ease of use should be critical design elements of all of packaging, as this enables a growth in market share. Without standard packaging design guidelines, businesses will lose customers because their needs are not being met. A range of people have issues with difficult-to-open packaging, including the elderly, those with disabilities, arthritis sufferers and children.

This half-day training course, which has been developed in conjunction with Arthritis Australia and Georgia Tech Research Institute, USA, is designed to foster an improved understanding of Accessible Design guidelines.

© iStockphoto.com/Malerapaso

## Finding out the truth about chemical migration from packaging into food

The truth is out there but is it known, regulated and understood? If you have knowledge to share about the migration of chemicals from packaging into food or comments about the regulations involving this, Food Standards Australia New Zealand (FSANZ) wants to hear from you.

FSANZ has previously assessed the risks of chemicals migrating from packaging to food and claims that overall the results were reassuring. However, some potential problems were identified.

In 2010, FSANZ surveyed 65 foods and beverages that were packaged in glass, paper, plastic or cans. They were looking to see if chemicals such as phthalates, perfluorinated compounds, epoxidised soybean oil (ESBO), semicarbazide, acrylonitrile and vinyl chloride were migrating from the packaging into foods and beverages and if they presented any health and safety risks. The survey built on a previous FSANZ survey of bisphenol A (BPA) in foods.

The survey results showed no detections of phthalates, perfluorinated compounds, semicarbazide, acrylonitrile or vinyl chloride in food samples.

ESBO, which is produced from soybean oil and is used in a range of plastics to give the plastic safe and airtight mechanical properties to form a good seal between a food container and its lid, was detected at very low levels in a small proportion of samples analysed. These levels were well below international migration limits set by the European Union and don't pose a risk to human health and safety.

FSANZ has continued to monitor levels of BPA and other chemicals used in food packaging which may migrate into foods and beverages.

The closing date for submissions is 5 August 2016.

In Australia, manufacturers are required by the Food Standards Code to ensure food in contact with packaging is safe.

Standard 1.4.1 - Contaminants and Natural Toxicants sets out the maximum levels of some contaminants that may be present in food as a result of contact with packaging material.

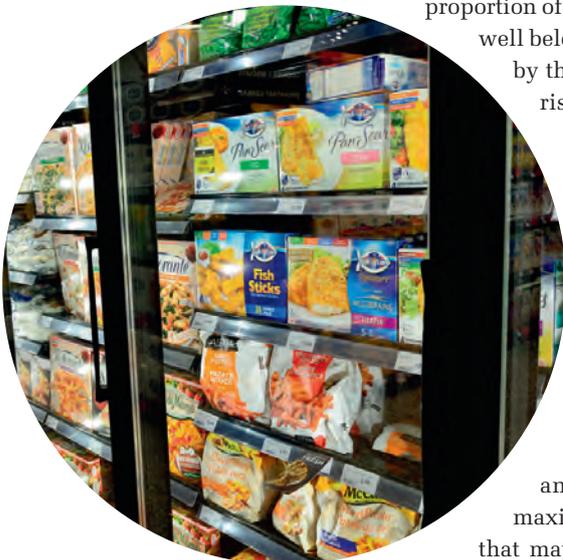


Image courtesy of ElasticComputeFarm (via Pixabay) under CCO Public Domain



## Orora injects \$25m into New Zealand operations

International packaging company Orora is increasing its New Zealand manufacturing capabilities, with an injection of more than \$25 million in its three key sites in Christchurch, Hastings and Auckland.

Orora supplies packaging products and services to the fresh produce, meat, dairy, grocery, fast-moving consumer goods and industrial markets in Australasia and North America. In New Zealand, the company delivers fibre packaging through its corrugated packaging business, Orora Kiwi Packaging.

“Our investment in a new state-of-the-art Flexo Folder Gluer (FFG) — a complete box-making solution that increases capacity, print capability and print quality — in our Christchurch facility reinforces our strong business confidence in the New Zealand South Island as it rebuilds following the earthquakes that severely impacted the region,” said Orora Chief Executive Officer and Managing Director Nigel Garrard.

Investment in Orora's Hastings operations includes a new FFG, a rotary die cutter to increase the site's capacity and a new automation solution for its latest die cutter. The company has also created 40 new jobs in the Hawkes Bay area.

Orora has also approved further capital investment in its Auckland operations for a new-generation FFG and a materials handling system to reduce repetitive handling.



Image courtesy of Etercut (via Pixabay) under CCO Public Domain

# Food

FOR  
thought

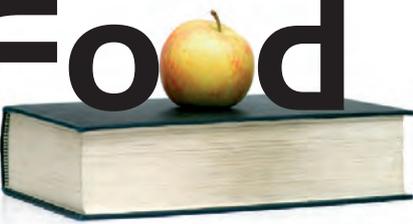



Image courtesy of Alicia Nijdam (via Flickr) under CC BY-SA 2.0

## Solar salt leads production in the Asia-Pacific region

By 2020 global salt consumption is forecast to be 335 million metric tons and worth \$14.1 billion.

China and India will lead the Asia-Pacific region, which will account for 45% of worldwide sales. Demand will increase faster in the Africa-Mideast region but this will be from a much smaller 2015 base.

As a result of this growth in the Africa-Mideast and Asia-Pacific regions, salt demand in chemical applications will expand at the fastest pace of any major market for the mineral through 2020. New caustic soda production facilities in the United Arab Emirates, among other places, will boost output capacity and upstream demand for salt. On the other hand, global chemical salt demand will be offset to a certain extent by a European Union regulation set to take effect in December 2017 that will ban mercury-based chlorine production. The high cost involved in converting to membrane-based capacity will cause a number of plants to close, dampening output and therefore salt consumption.

Solar evaporation will remain by far the most common method for extracting salt in 2020, accounting for over two-fifths of worldwide output. This method's low costs relative to the more energy-intensive rock salt mining and brine extraction processes will support gains.

## Mandatory labelling of lupin as an allergen

Lupin is an emerging food allergen of public health significance in Australia and New Zealand, and FSANZ (Food Standards Australia New Zealand) is now calling for submissions on a proposal to require the mandatory declaration of lupin as an allergen.

Lupin is a legume and is related to other legumes such as peanut and soy, which have proteins that are allergenic for some consumers. Traditionally the Australian sweet lupin (*Lupinus angustifolius*) crop has been used for animal feed or exported to overseas markets. But the high protein and fibre content of lupin is seeing it have an increasing presence in human food in Australia and, to a lesser extent, New Zealand.

Lupin is more widely used in food products in Europe where there has been mandatory allergen labelling for food products containing lupin since 2007.

FSANZ is now proposing adding lupin to the list of allergens in the Australia New Zealand Food Standards Code.

According to the code, wheat, crustacea, egg, fish, milk, peanuts sesame seeds, soybeans, tree nuts and the products of these foods must be declared whenever they are present in a food as an ingredient, ingredient of a compound ingredient, food additive or processing aid (or ingredient or component of these). This declaration is required either on the label of the food, or if a label is not required, such as on unpackaged food, in connection with the food or provided on request.

Declaring allergens on packaged labels and requiring this information to be available for unpackaged foods is seen as an effective risk management tool in the avoidance of food allergy in susceptible consumers.

In the last few years, use of lupin-derived ingredients (such as flour, grits and bran) has increased in food products produced in Australia, and the lupin industry sees strong potential in the development of uses of various lupin products in food. Lupin flour and bran are used in a variety of products including baked goods such as bread, biscuits, muffins and cakes, pasta products and sauces.

As a result of the increased interest in using lupin-derived products in food available in Australia, it is expected that in addition to the Australian sweet lupin, other varieties of lupin will also be cultivated in Australia or imported to satisfy demand. White lupin (*Lupinus albus*) and yellow lupin (*Lupinus luteus*) are two other cultivated species widely used in food production in Europe.

Possible future uses for lupin include:

- as a source of protein in body-building powders;
- as a food additive such as an alternative source of lecithin;
- as a bulking agent in processed meat products;
- as a processing aid, eg, as an emulsifier in meats and the cold-cut industry;
- as a lactose replacement in milk-/lactose-free ice-cream;
- as a replacement for soy in miso sauce or tempura batter;
- as a milk substitute.





# How do you know

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

Only one mark truly confirms a non-ingredient product is food-safe. If it's not food-safe in every respect, it can't carry this mark – simple.

The HACCP Australia certification mark is aligned with the due diligence requirements of the world's leading food safety standards and quality systems. Ten key criteria are examined to give you that full assurance. Certified products need to satisfy ALL criteria – not just individual components. It's either completely fit for its purpose or it's not!



**No ifs, no buts, it is or it isn't!**

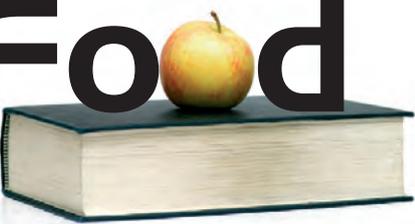
That's why products from these well respected manufacturers and many more carry the mark.



[www.haccp.com.au](http://www.haccp.com.au)

# Food

FOR  
thought



## Sealed Air extends its CIP expertise through acquisition

Sealed Air has acquired Tampereen Teollisuussätkö Oy (TTS-Ciptec), a Finnish company that optimises cleaning in place systems through remote monitoring capabilities and predictive analytics services for industrial use in brewing, beverage and dairy companies.

“TTS-Ciptec’s unique approach and complementary technology in patented sensing and algorithms bolsters our knowledge-based services,” said Karl R Deily, president of Sealed Air’s Food Care division.

“Combined with Sealed Air’s expertise in data analytics and experience in the food and beverage industry, this acquisition enhances how we meet our customers’ sustainability needs by saving time, reducing product loss and water and energy consumption, and improving quality, hygiene and yield.”

© iStockphoto.com/Willselirep



© freshidea/Dollar Photo Club

## Salmonella research boosted by \$10 million grant

*Salmonella* bacteria are responsible for more than 100 million symptomatic infections every year, sometimes with deadly results.

To improve understanding about the interactions between *Salmonella* bacteria and immune cells infected by the pathogen, as well as treatment for such infections, Stanford University is opening a new centre.

The Allen Discovery Center for Multiscale Systems Modeling of Macrophage Infection will be directed by Markus Covert, PhD, associate professor of bioengineering at Stanford. The multidisciplinary centre is being funded by a four-year, \$10 million grant from the Paul G. Allen Frontiers Group, a non-profit organisation aimed at spurring biomedical innovation. The centre could receive as much as \$10 million more after that period to fund four more years of work.

The centre will integrate cutting-edge modelling, computation and experimental measurements to create multiscale models of the bacteria as they infect human immune cells, shedding new light on how this

complex system of cell behaviours creates infectious disease.

Species of *Salmonella* cause more than 100 million symptomatic infections annually, including 16 million to 20 million cases of typhoid fever. The microorganism’s modus operandi is to infect and hide out in immune cells called macrophages, manipulating the metabolism of these cells to its own benefit.

“We are grateful for the recognition and support of Stanford’s faculty in the area of quantitative bioscience,” said Stanford University President John Hennessy, PhD. “The application of engineering and computational techniques to solving the hardest problems in biomedicine is one of the most exciting and promising research directions.”

Denise Monack, PhD, associate professor of microbiology and immunology, and KC Huang, PhD, associate professor of bioengineering and of microbiology and immunology, will be co-investigators at the centre, Covert said.

“We’ve assembled a unique team with the experience to bring the latest biological and bioengineering knowledge together with industrial-scale computational methods,” said Covert, whose research concentrates on building computational models of complex biological processes and using these models to guide experimentation. “We expect that the resulting multicellular modelling platform, which will be available to everyone, will transform the rate at which biological discovery occurs in many areas of bioscience, well beyond infectious diseases.”



## Extra savings... We'll drink to that!

Regardless of the liquid you move, SEW-EURODRIVE's Mechatronic Drive Systems guarantee cost savings through lower electricity usage, simple system integration, minimised spares inventory, decreased cleaning efforts and increased system durability.

### Your Benefits:

**Energy Savings Up to 50%:** Achievable with MOVIGEAR®, which includes a IE4 (Super Premium Efficiency) motor, highly efficient gearing and on-board drive electronics mounted in a common housing.

**Minimised Spares Inventory:** Vast speed range capabilities of MOVIGEAR® mean differing rotational speed requirements can be solved with a reduced number of unit variants.

**Hygienic System Design:** Reduced debris entrapment and increased surface durability in corrosion prone environments due to smooth housing design, HP200 surface finish and stainless steel components.

**Decentralised Technology:** Geared motor, drive electronics and fieldbus system mounted in the field resulting in a diminished control cabinet, reduced wiring effort and easy integration with industrial Ethernet control systems.

**Want to know more? Contact us today:**

[www.sew-eurodrive.com.au](http://www.sew-eurodrive.com.au)

1300 SEW AUS (1300 739 287) to be directed to your nearest office

Melbourne (Head Office) | Sydney | Brisbane | Townsville | Perth | Adelaide

**SEW**  
**EURODRIVE**

# Better protection

from unfair contracts for small businesses afoot

Robert Williams\*



How many times have you been in discussions with a larger or more powerful supplier or customer and been presented with a one-sided contract and told that if you want the business you have to agree to it? Particularly if you are a small or medium-sized business in Australia, the reality is that this will happen regularly.

Australia's competition law (the *Competition and Consumer Act 2010*), is much like the law of the jungle — it is about survival of the fittest, rather than ensuring the survival of particular competitors. Because of this, our competition law does not generally focus on the micro level in terms of a supplier imposing onerous obligations on a particular customer or a customer imposing onerous obligations on a particular supplier. Over the years, this has left many small businesses forced to live with obligations that are one-sided and quite unfair.

Under the Australian Consumer Law (which is part of the *Competition and Consumer Act 2010*) small businesses

have some protection from “unconscionable conduct”. The general picture that emerges from various court cases is that the conduct has to be really over the top before the court is likely to act. From a practical perspective, one of the problems that has arisen is over the word “conduct”. The courts view it as not covering the actual wording in a contract, but rather restricted to the manner in which the contract is obtained, or the way in which the contract is used later on against the weaker party. This means the unconscionable conduct provision does not look at specific terms of the contract in isolation and say that they are too unfair to be allowed to remain.



Well, the good news is that from 12 November 2016, small businesses will enjoy similar protection from unfair contract terms that consumers currently do under the Australian Consumer Law.

### The starting point — what is a ‘small business’?

One thing that is very clear in Australia is that there is no universal definition of what is a small business. Almost every law uses a different test — which makes life confusing, if not frustrating. And the Australian Consumer Law is no different, but for the new law relating to unfair contracts, a small business is very narrowly defined.

When we talk of unfair contracts, a small business is defined as one that employs fewer than 20 staff (including casuals working on a regular and systematic basis). Personally, I would have said this is more of a micro business!

### Does the protection apply to all contracts entered into by a small business?

No it doesn't! Unfortunately, this new protection has been restricted to standard form contracts with an upfront price payable under the contract of less than \$300,000, or less than \$1 million if the term is greater than 1 year, for contracts that are entered into, or renewed, after 12 November 2016.

Rather than include a definition of what is a “standard form” contract, a contract is assumed to be standard form unless the party that prepared it can prove to the court that it isn't. Deciding this will involve considering whether:

- the contract was prepared by it before or after discussions with the small business;
- there was a real opportunity for the small business to negotiate changes to the terms of the contract, particularly the unfair term;
- whether one of the parties has all or most of the bargaining power relating to the transaction; and
- the contract took account of the specific characteristics of the small business and/or of the particular transaction.

The new law will not apply to shipping contracts and some insurance contracts.

### What is an unfair contract term?

To decide whether a term of a standard form agreement with a small business is unfair, the court must consider the contract as a whole, including any other terms that might offset the unfairness. This will include whether the term is transparent or buried in the fine print — the more it is buried the more likely it will be seen as unfair. To be unfair, the term must:

- cause a significant imbalance in rights and obligations between the small business and the stronger party;
- go beyond what is reasonably necessary to protect the legitimate interests of the stronger party; and
- cause financial or other detriment to the small business if it is relied on by the stronger party.

Ultimately, only a court can decide whether a term is unfair.

### Some examples of potentially unfair terms:

1. A term allowing the stronger party to unilaterally vary key aspects of the contract (such as price of the goods or services to be provided) with no right for the small business to terminate if it does not agree to the change.
2. A term which excludes or severely limits the liability of the stronger party.
3. A term that requires the small business to indemnify the larger business against all loss and damage, including loss or damage caused by the stronger party, arising in relation to the contract or the goods or services supplied under it.



4. A unilateral right for the stronger party to terminate the agreement without cause (ie, for convenience), whereas the small business is locked in with no similar right.
5. A term which requires the small business to pay liquidated damages or pay the other party damages equal to the fees for the remaining period of the contract, if the contract is terminated early — even if terminated by the stronger party for convenience or terminated due to a breach by the stronger party.
6. A term that allows the stronger party the sole right to interpret the meaning of the contract, or whether a term has been breached, without having to act reasonably or be subject to any dispute resolution process.
7. A term that removes the right to a refund of a deposit if the small business terminates the contract — even if it terminates because of the stronger party's failure to perform its obligations under the contract.

All these examples raise concerns because they cause a serious imbalance in the parties' rights and obligations and it is unlikely that such a term is necessary to protect the stronger party's legitimate interests. If the stronger party relies on the terms, they will almost certainly cause financial or other detriment to the small business.

### So what does it really mean for you?

The main consequence of a contract term being declared unfair is that it cannot be enforced against the small business. If the remainder of the contract can still operate without the unfair term then the term will be severed from the contract. If not, the entire contract will be void and a court will set it aside.

Although the new law will help some small businesses, the reality is that the cut-off level of 20 employees will mean that many small businesses will be unable to utilise it and

“ *The main consequence of a contract term being declared unfair is that it cannot be enforced against the small business.* ”

will have to continue to rely on the existing unconscionable conduct provision in the Australian Consumer Law. That provision is still effective in the right circumstances and was relied on by the ACCC last year over Coles' treatment of some suppliers (with \$10 million in penalties as well as large refunds to the suppliers). The ACCC is also relying on the unconscionable conduct provision in its current action against Woolworths for Woolworths' actions against some of its suppliers.

### What should you do if you think you are being asked to agree to an unfair term?

At the end of the day, it will be a commercial decision whether or not you sign the agreement in the form presented by the other party. But if you think it contains an unfair term we strongly recommend that you:

- ask the other party to remove the term or amend it so it is no longer unfair;
- get legal advice so you understand the risk the term poses and what options you might have to challenge the agreement later on — if things go off the rails;
- contact your local state or territory consumer protection agency or the ACCC if you cannot afford to use lawyers to help you with a dispute over the unfair term. 



*\*Robert is the Principal of Robert Williams Legal & Regulatory Solutions, a specialist practice in the areas of commercial legal risk management, competition and consumer law, food and other regulatory issues. He has built his career as an external legal advisor; a senior in-house legal adviser with 15 years in both ASX listed and large privately owned companies; and originally as a regulator with the Australian Competition and Consumer Commission (ACCC).*

*Robert's comprehensive experience encompasses all aspects of competition and consumer law, food law and other regulatory issues facing companies in Australia and New Zealand. Robert understands the pressures and issues facing food businesses in Australia and New Zealand, having worked in the industry for almost 10 years as a senior in-house lawyer, as well as assisting various food businesses as an external legal adviser. His company acts for many small businesses across Australia and is always happy to talk with you about such problems.*



DICE



GRANULATE



SHRED



MILL/GRIND



SLICE



STRIP



PUREE

# CUTTING EDGE

Urschel manufactures over 50 different hard-working models of cutting machinery. From slices to dices, granulations to shreds, slurries to smooth purees, you can rely on Urschel to deliver expert solutions for all of your cutting applications.



delivering  
targeted  
cutting  
solutions

image@stockphoto.com

# Food

FOR

## thought



### A coating of silk keeps fruit fresh

Despite its delicate appearance, silk is one of the natural world's toughest materials. Now, that strength is being harnessed to protect delicate produce such as berries and bananas to lengthen their shelf life.

Engineers from Tufts University in Massachusetts, USA, have demonstrated that fruits can stay fresh for more than a week without refrigeration if they are coated in an odourless, biocompatible silk solution so thin as to be virtually invisible.

Half of the world's fruit and vegetable crops are lost during the food supply chain, due mostly to premature deterioration of these perishable foods, according to the Food and Agriculture Organization (FAO) of the United Nations. The use of silk coating offers a naturally derived and water-based alternative for the preservation of delicate foods.

Silk's toughness stems from its unique crystalline structure. Fibroin, an insoluble protein found in silk, has a remarkable ability to stabilise and protect other materials while being fully biocompatible and biodegradable.

For the study, published in *Scientific Reports*, researchers dipped freshly picked strawberries in a solution of 1% silk fibroin protein, repeating the coating process up to four times. The silk fibroin-coated fruits were then treated for varying amounts of time with water vapour under vacuum (water annealed) to create varying percentages of crystalline beta sheets in the coating. The longer the exposure, the higher the percentage of beta sheets and the more robust the fibroin coating. The coating was 27 to 35  $\mu\text{m}$  thick.

The strawberries were then stored at room temperature. Uncoated berries were compared over time with berries dipped in varying numbers of coats of silk that had been annealed for different periods of time. At seven days, the berries coated with the higher beta sheet silk were still juicy and firm, while the uncoated berries were dehydrated and discoloured.

Tests showed that the silk coating prolonged the freshness of the fruits by slowing fruit respiration, extending fruit firmness and preventing decay.

"The beta sheet content of the edible silk fibroin coatings made the strawberries less permeable to carbon dioxide and oxygen. We saw a statistically significant delay in the decay of the fruit," said senior and corresponding study author Fiorenzo G Omenetto, PhD.

Similar experiments were performed on bananas, which, unlike strawberries, are able to ripen after they are harvested. The silk coating decreased the bananas' ripening rate compared with uncoated controls and added firmness to the fruit by preventing softening of the peel.

The thin, odourless silk coating did not affect fruit texture. Taste was not studied.

"Various therapeutic agents could be easily added to the water-based silk solution used for the coatings, so we could potentially both preserve and add therapeutic function to consumable goods without the need for complex chemistries," said the study's first author, Benedetto Marelli, PhD.



© nata777\_7/Dollar Photo Club



© Freeimages.com/Koos Schwaneberg

### New standard will simplify price comparisons

Price is a significant factor when making purchase decisions. But with an explosion in product choices — a survey of an Australian supermarket, for example, showed it had 55,000 items — as well as greater variations in product sizes and packaging, comparing similar products based on price is a complicated, time-consuming task.

Unit pricing is a simple solution that allows consumers to quickly assess the value of products when compared with similar ones packaged in a different manner. Research has shown that, where it exists, consumers are likely to use it in making their choices, but it is not always widespread and laws and units vary widely around the world.

To address this disparity, ISO experts have formed a committee aimed at developing a standard to make unit pricing work effectively.

ISO project committee ISO/PC 294, Guidance on unit pricing, has started work on an International Standard that will establish guidelines and principles of unit pricing such as visibility, accuracy, consistency and uniformity.

Committee Chair John Furbank explained that the new standard will make comparing products easier for consumers and give retailers a competitive edge.

"The standard will provide the potential to save consumers millions of dollars worldwide, and benefit retailers by adding to customer satisfaction and thus loyalty."

The standard is likely to be published sometime in late 2017.

# Switch to a gas partner who gives you a choice of solutions



At Air Liquide, we put food safety at the core of our offer. Globally, as the industry benchmark, our ALIGAL™ range is designed specifically for the food industry and meets FSANZ specifications. Our gases and dry ice come in a range of supply modes to meet your production, storage and transportation needs. Trust our experience and excellence in supply chain compliance and product reliability to provide you with full process support and services, from start-to-finish.

Gas that works for you™

[airliquide.com.au](http://airliquide.com.au)



# APPMA

Australian Packaging and Processing Machinery Association Limited

Representing Australia's leading **packaging** and **processing machinery** and allied **components** companies

**DID YOU KNOW THAT  
24 APPMA MEMBER COMPANIES  
ARE EXHIBITING AT  
FOODTECH PACKTECH 2016?**

The Australian Packaging and Processing Machinery Association (APPMA) is Australia's only national packaging and processing machinery and allied components association and is designed to promote, integrate and foster participation and development at all levels of the packaging and processing machinery side of the industry.

Members include manufacturers, distributors and importers of packaging and processing machinery who are suppliers to industries such as food, beverage, dairy, meat, poultry, seafood, confectionery, bakery and fresh produce.

24 APPMA Member companies will also be exhibiting at FoodTech PackTech 2016 and include: A&D Weightec, ABB, AccuPak, Confoil, Heat and Control, HMPS, IFM Electronic, Integrated Packaging, JL Lennard, JMP Engineering, KHS, Multivac, Omron, Propac, Reynolds Group, Rhima, Rockwell Automation, Romheld, SICK, SMC Pneumatics, TNA, Tronics, Walls Machinery and Wedderburn.

**If your company is looking for specific Packaging and Processing Machinery or you need assistance with developing a tender then the APPMA can source the appropriate member companies for you. Come and visit stand 2037B and ask for an APPMA Member Directory to get you started.**

FOODTECH  
PACKTECH 

[appma.com.au](http://appma.com.au)



**T**he Drinks Industry Show will let visitors experience the latest in beer, wine and spirits from across the globe. All areas of the drinks industry from producers, through distributors to buyers will find the latest information and trends in wine, beer and spirits. The trade-only event will reconnect producers and distributors of alcoholic beverages with buyers. The exhibition will feature niche products, unique brands and inspiring renditions by designer craftsmen of beer, wine, spirits and cider. Presenting an upmarket platform for Australia's liquor industry, all restaurants, pubs and clubs, liquor retail establishments, catering businesses, hotels and airlines are invited to network with the industry's most prestigious players.

The upcoming winners of the Australian drinks Awards in September will be showcasing their eclectic cocktail masterpieces and the secrets to their unrivalled success. Accompanied by inspiring cocktail mixology and tasting masterclasses, new-age star-tenders will compete for the title in the Australian Bartenders Guild Classic & Flair National Cocktail Competition.

A dedicated partner of the show, the drinks Association is delighted to launch a series of events to complement the Drinks Industry Show. Invitations are exclusive to members of the drinks Association and are designed to inspire networking, education and leadership within an inclusive drinks industry.

BRAND YOU is a keynote experience that will:

- take you out of your comfort zone;
- challenge what you have been taught, what you believe and how you think;
- invite you to start being a little more unreasonable in your life;
- ask you to make a stand for something;
- get you to being a 10/10 in all things, at all times.

The event series will wrap up with the CFO Forum, which invites chief financial officers to exchange ideas, knowledge and experiences in the beverages industry and discuss common areas of interest. 

**bulk handling**  
storage & logistics



# Ratholes and flow challenges

## Slippery engineering helps solve the challenges of ratholes nibbling away profit

Common and costly bulk material flow challenges include arching of product to inhibit free flow and the clogging condition known as ratholing. These wasteful, energy-consuming and sometimes hazardous events occur when handling and storing a wide range of cohesive materials, such as flour and food and beverage ingredients and materials on silos, hoppers and transfer chutes of conveyor systems.

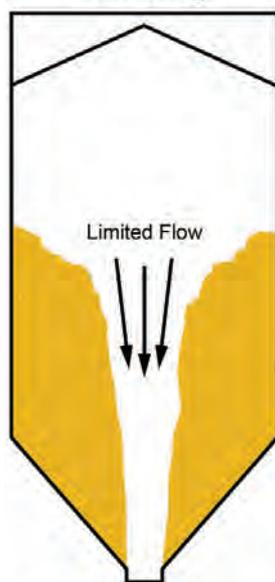
**R**atholing occurs when cohesive bulk materials are stored and conveyed in vessels with a funnel flow discharge pattern. When a stable rathole develops, the bulk material remaining in the vessel is stagnant and will not discharge. This stagnant inventory of bulk material can spoil, cause cross batch contamination, spontaneously combust and limit storage capacity.

Similar problems occur with arching, which occurs when an arch-shaped or bridge obstruction forms above the hopper outlet and stops flow. It can be an interlocking arch, where large particles mechanically interlock to form an obstruction, or a cohesive arch. A cohesive arch occurs when particles bond together due to effects of moisture, fines concentration, particle shape, temperature and other factors.

Australian engineering is answering many of these challenges using a flow-promoting plastic liner material UHMWPE (ultra high molecular weight polyethylene) Green Wearex material formulated and shaped to increase the throughput and capacity of hoppers and silos by curtailing the 'hang-up' of materials and eliminating dead spots in material flow.

"In many situations, the condition of ratholing and arching occurs because the wall surfaces of the vessel are not steep or

### Ratholing



Side figure of a rathole.

smooth enough for materials to flow," said Pat Flood, NSW manager of the national and international engineered plastics specialist Cut To Size Plastics.

Cut To Size custom-engineers solutions to such issues using Green Wearex, which is a regenerated material specifically formulated to promote material flow in situations as diverse as mines, ports and hygiene-intensive food, beverage and agricultural processing and packaging facilities.

"Green Wearex achieves mass flows while eliminating the ratholing and arching problems that can hamper flow rates and increase downtime in unlined materials handling technology," said Flood. The improvements reduce the need for energy-consuming air cannons or vibratory equipment to dislodge hang-up material, reducing costs and enhancing profitability.

Green Wearex's very high molecular weight delivers a combination of low coefficient of friction together with high abrasion and corrosion resistance. This permits reliable handling of a wide range of cohesive materials with 'funnel

flow' characteristics in which flow issues arise because they are affected greatly by variables such as moisture content, temperature and storage design.

Cut To Size Plastics Pty Ltd  
[www.cuttosize.com.au](http://www.cuttosize.com.au)



INDUSTRY

FOOD PROCESSING

LED

# Lighting Solutions for Food Processing

Sammode offers lighting solutions for agricultural food processes, satisfying all quality, security and hygiene standards.

**We guarantee durability,  
resistance & maintainability**



For further information please contact [info@sammode.com.au](mailto:info@sammode.com.au)  
or call Sammode on + 61 (0) 7 3335 3504  
[www.sammode.com.au](http://www.sammode.com.au)



**Sammode**  
Technical lighting since 1927

# A fresh approach to modernising IT

## in the food and beverage industries

*Helen Masters, Vice President and Managing Director, South Asia and Pacific*

Consumer tastes are continually evolving. Never before has there been a greater consciousness of what's in the products we eat, how they are processed and preserved, and the sources of their ingredients. Frankly, consumers are taking a fresh look at what they're eating, and it's the companies that can meet these expectations who are seeing results in the form of increased sales.

Catering to these new needs requires greater investments in R&D, as well as processing and packaging equipment. It also relies on improved communication with suppliers and customers, which ultimately place a greater demand on the data that food companies need to manage. Add this to constantly changing regulations, reporting requirements and ongoing issues faced with planning, seasonality and promotion management, and the challenges keep mounting.

But with so much on their plate, how do food companies balance these initiatives while operating within the reality of their cash flow?

To many companies, the idea of a major IT transitional investment such as a new ERP solution may seem too much to take on — both financially and timely. Many of these costs are fundamentally driven by IT and data management, and so the temptation is quite simply to make do with existing software and supplement limited functionality with spreadsheets and guesstimates.

Despite the added value the business gained the first time around, any seasoned food and beverage executive who has previously experienced an ERP implementation which left them with sour memories would find it unideal and illogical

to pursue the burden of another project, particularly if the business already feels swamped.

However, as the world of ERP has changed significantly over the last few years, so too should one's perceptions.

The traditional idea of a one-size-fits-all manufacturing solution has developed into a specific 'food and beverage ERP solution' with optional modules to address unique requirements. This includes industry needs for traceability, new product introductions, complex scheduling and a myriad of other modern challenges. In order to increase profitability and maintain growth, modern businesses need to adopt these tools to help them rethink the way they operate and embark on bold new strategies.

Another barrier preventing food companies from moving to a new solution is the perceived high capital cost and the substantial disruption to their business. These have both been overcome with the introduction of industry-specific cloud solutions that have a purpose-built ERP functionality at their core. Said cloud deployments are gaining momentum, and more food and beverage manufacturers are considering the benefits that can be derived from Software as a Service (SaaS) rather than on-premises implementations.



## What if waste was fuel?

Wiley have delivered biogas co-generation projects for our clients that have turned a costly waste management problem into a million dollar annual energy saving.

If you're not finding a better way to use every dollar, you're just pushing 'you know what' up hill.



Scan here or visit our site for more about this and other success stories.

 [linkedin.com/company/wiley](https://www.linkedin.com/company/wiley)  [@wileytalk](https://twitter.com/wileytalk)  [/wileytalk](https://www.facebook.com/wileytalk) [wiley.com.au](https://www.wiley.com.au)

BRISBANE • KUALA LUMPUR • MELBOURNE • SYDNEY • TOOWOOMBA • BANGKOK • JAKARTA



Of course, with any substantial investment in IT, selecting the right vendor is often the most important factor to consider, and there are a number of questions you should be asking when evaluating a potential cloud solution.

#### What level of functionality is built in?

Any cloud solution should offer flexible and industry-specific functionality that reduces the need for customisations. This includes built-in tools to address challenges such as short shelf life, attributes, yield and catchweight.

#### Will it unify operations?

It is important to avoid numerous separate applications. Rather, the solution should provide all the functionality that is critical to a business within a unified suite. These include capabilities for forecasting and demand planning, tracking and traceability, and recipe management. By having a comprehensive solution in the cloud, companies will enjoy enterprise-wide visibility that will help to streamline operations for greater efficiency.

#### Is it secure?

To protect data from compromise, companies should always confirm that the solution follows industry best practices and protocols. Having a dedicated business unit that specialises in cloud implementation and deployment is a good indication of a vendor's commitment to security. Their consultants should

also demonstrate extensive experience with SaaS-based implementations.

#### Are pricing options flexible?

A major advantage of cloud solutions is subscription-based pricing that helps companies avoid upfront expenditure. It is even more valuable if the solution has the flexibility to add additional functionality and users to meet business growth and increased demand. Having a per-user-per-month pricing model increases transparency for cost projections and avoids rigid contracts that may become outdated as the business evolves.

In summary, by moving critical applications to the cloud, food and beverage manufacturers may enjoy immediate savings and faster ROI, whilst at the same time enhancing their efficiency through industry-specific functionality. While operating with the very latest technology, manufacturers will also benefit from a flexible IT environment that offers scalability to meet business growth — while being well placed to successfully compete on a global stage.

With all these benefits in mind, organisations should be asking how, rather than why, they should move away from rigid on-premised solutions and embrace a more flexible, affordable and integrated cloud model. 

*Infor Global Solutions*  
[www.infor.com](http://www.infor.com)

## A NEW Wireless Monitoring Solution that Stops at Nothing

Introducing VaiNet: the new long-range wireless technology for the Vaisala viewLinc Monitoring System.



- Unique, truly reliable wireless technology
- Battery powered data loggers, easily replaceable probes
- Self-configuring devices, self-healing network
- Superior signal strength and penetration

<http://viewlinc.vaisala.com>

[sales.melbourne@vaisala.com](mailto:sales.melbourne@vaisala.com)

**VAISALA**

## Algal omega-3 farm to be built in SE Queensland

Queensland-based omega-3 algae farming company, Qponics, has been awarded a \$1 million grant to construct a commercial-sized algae farm in South East Queensland. The project, funded through the federal government's Cooperative Research Centre Project program, will include co-participants The University of Queensland and Nutrition Care Pharmaceuticals, a Melbourne-based global marketer of nutraceuticals and pharmaceuticals.

Dr Graeme Barnett, managing director and CEO of Qponics, said algae farming investment for omega-3 fatty acids has just begun in earnest in South East Queensland in Australia. "Our goal is to produce omega-3 oils for human health, so that we do not impact on global stocks of marine animals such as fish and krill," Dr Barnett said.

"The grant project, titled 'Translational R&D to accelerate sustainable omega-3 production' will allow Qponics to more resourcefully construct a commercial-sized algae farm commencing this year.

"The Qponics algae farm on a site in South-East Queensland will integrate a suite of innovative and sustainable technologies developed by Professor Peer Schenk and his research team at The University of Queensland over the past decade.

"We are very pleased to be working closely with The University of Queensland and Melbourne-based Nutrition Care Pharmaceuticals."

The innovative technologies demonstrated to significantly increase algae productivity and the yield of omega-3 fatty acids include:

- an EPA omega-3 rich strain of algae;
- innovative pond design and CO<sub>2</sub> delivery and mixing;
- accelerated omega-3 lipid induction process;
- effective algae grazer-control process, nutrient-recycling and solvent-free oil extraction;
- off-grid electricity generation using solar panels and a biogas plant with battery storage.

These technologies have been deployed and further improved at the University of Queensland's research algae farm for the past two years. Professor Schenk said his team is pleased to be working closely

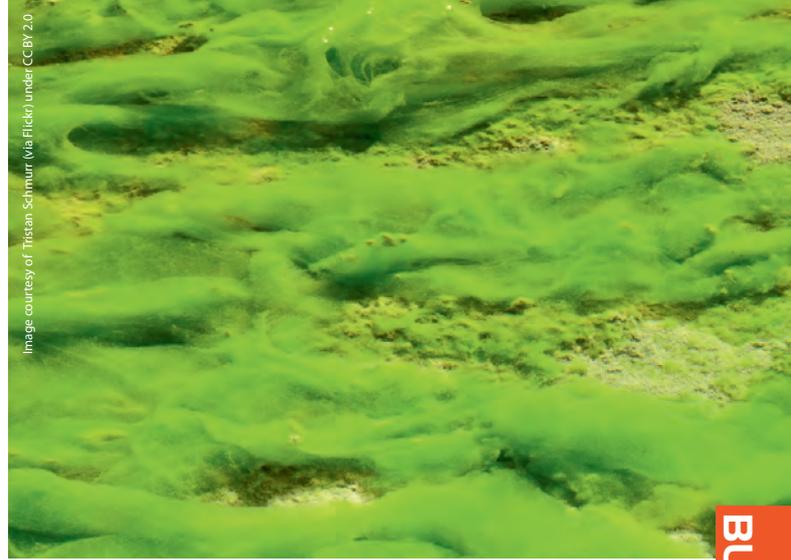


Image courtesy of Tristan Schmur (via Flickr) under CCBY 2.0

with Qponics to produce a safe, natural and vegetarian-friendly source of DHA and/or EPA omega-3 oils.

"Studies indicate that most of the world's population is deficient in these essential fatty acids, which contributes to a wide spectrum of health disorders," Professor Schenk said.

South East Queensland is an ideal location for a commercial-scale farm for the production of omega-3 oils and other high-value products from algae. The University of Queensland offers world-class expertise in algae science, algae biotechnology and algae farm design; the region's subtropical climate is ideal for the production of algae; and the region has plenty of agricultural land close to urban centres that is suitable for large-scale algae farming.

"We anticipate that construction of our algae farm will commence in 2016 on a near-urban site in South East Queensland," Dr Barnett said. "Initially, we plan to build a 1-hectare farm before scaling up to a 10-hectare farm in 2017, which will become the standard module design for further expansion of production."

Nutrition Care Pharmaceuticals has a well-established reputation for the filling and packaging of premium-grade nutritional and herbal products, often referred to as nutraceuticals. Professor Ian Brighthope, founder of Nutrition Care Pharmaceuticals, said there is extraordinary demand for quality Australian-made nutraceutical products in the Asia-Pacific region, particularly for omega-3 oil manufactured from algae. "We are very confident that Qponics' EPA omega-3 oil will be in high demand in a variety of new formulations for use as therapeutic products, dietary supplements and functional foods," Professor Brighthope said.

Dr Barnett said that Qponics' projected annual revenues and earnings per hectare for its farm were very attractive. "Global wholesale prices for high-quality algal omega-3 oil are high and expected to rise further, and demand for these products continues to exceed supply," he continued.



## Uninterruptible power supply

Schneider Electric has announced the availability of Gutor PXC, a standardised, fully industrial uninterruptible power supply (UPS) for harsh environments.

The product is suitable for outdoor settings and climates with extreme temperatures. It protects critical equipment and industrial applications from damage due to power outages, surges and spikes while providing short-term battery power during an outage.

Key features include an operating temperature of up to 55°C, integrated seismic compliance to meet vibrations of up to 1 G and an embedded dust filter reinforcement of ambience protection. As well as this, the product has a small footprint, with 600 mm width for 10 to 80 kVA without transformers and a lifetime management of more than 20 years.

**Schneider Electric IT Business**

[www.schneider-electric.com](http://www.schneider-electric.com)



## Rotary screw compressors

With free air deliveries from 3.16 to 5.53 m<sup>3</sup>/min at 8.5 bar, and capable of 15 bar maximum operating pressure, the Kaeser ASD series rotary screw compressors are suitable for users who require small volumes of compressed air.

At the heart of every ASD compressor is a Kaeser rotary screw compressor block equipped with flow-optimised Sigma Profile rotors. The compressor block and the drive motor are directly coupled and turn at exactly the same speed. The drive power is transmitted from the motor to the compressor block without the losses incurred by gearing or drive belts. The use of IE3 electrical motors contributes to additional energy savings.

The Sigma Control 2 internal controller not only enables demand-oriented performance matching and dependable monitoring, but also ensures flexibility through its numerous interfaces and innovative plug-in communication modules. Connection to energy-saving master control systems, computer networks and/or remote diagnostics and monitoring systems becomes easy. The addition of an integrated RFID reader ensures service continuity, increases security and raises service quality.

The rotary screw compressor is optionally available with an integrated refrigeration dryer and/or frequency control module, allowing the compressor system to be precisely tailored to meet the user's exact requirements. Models featuring an integrated compressed air dryer are also equipped with a centrifugal separator and an electronic Eco Drain condensate drain, ensuring efficient condensate separation and drainage and aiding effective operation of the downstream refrigeration dryer.

The ASD series rotary screw compressors are available with drive power 18.5 to 30 kW, maximum working pressure 8.5 to 15 bar and free air delivery of 2.63 to 5.53 m<sup>3</sup>/min.

**Kaeser Compressors Australia**

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

## Don't let profits leak into thin air

An Australian food manufacturer was literally blowing over \$55,000 in wasted energy costs annually... and didn't know it! The manufacturer believed the efficiency control and maintenance regime for its sizeable compressed air system was entirely adequate.

As a matter of energy-use review, the manufacturer called Southern Cross Compressors (Australia) Pty Ltd to carry out the thorough air audit.

Using the latest leak detection technology (UE Ultraprobe 9000), which detects and records the decibels at the natural frequencies of air leaks, accurate leak detection can be recorded from up to 10 m away from the probe. This ensures detection of even the smallest leaks throughout the compressed air system. While most leaks were easy to repair, according to Southern Cross Compressors, they would not have been discovered without the use of this advanced leak detection technology.

Using a calibrated chart, the detected sound level (dB(A)) then converted to a volume flow rate (m<sup>3</sup>/min), which in turn is converted to power (kW) to calculate annualised costs, determined on running hours and electrical supply costs. All leaks were individually tagged using colour codes based on severity and then photographed for a customised report.

The comprehensive, 50-page audit report, which was presented to the customer, included highly critical data such as: individual leak volume, equivalent power, annualised cost, equivalent CO<sub>2</sub> emissions as well as a photo of the colour-tagged leak. The report also provided a comprehensive summary of the potential savings opportunity, which has enabled the customer to make informed decisions and prioritise leak repairs based on severity, energy loss and repair costs.

Southern Cross technicians were able to find over 50 significant leaks with a total air volume well over 10 m<sup>3</sup>/min, representing an annualised wasted energy cost of approximately \$55,000.

In today's efficiency-driven age where energy costs are fundamental to business sustainability, this type of audit and reports advice can lead to significant cost savings. For the relatively low cost of the air audit, potential returns can far outweigh expense.

**Southern Cross Compressors (Australia)**

[www.southerncrossaircompressors.com.au](http://www.southerncrossaircompressors.com.au)





- Fully automatic, High Speed Pallet Wrapping Solution
- Reduce consumable costs whilst improving the quality of your end of line packaging

Contact us today to arrange a free test using your own pallets.

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



**Lachenmeier**  
Fynsgade 6-10 ▪ 6400 Sønderborg ▪ Denmark  
Tel. +45 7342 2200 ▪ [info@lachenmeier.com](mailto:info@lachenmeier.com)  
[www.lachenmeier.com](http://www.lachenmeier.com)



**Distributor Australia**  
Bliss & Reels, Bulleen, Victoria  
Tel. +61 3 9850 6666  
[sales@blissandreels.com.au](mailto:sales@blissandreels.com.au)  
[www.blissandreels.com.au](http://www.blissandreels.com.au)



## Fonterra's new dark, robot-controlled warehouse will house 110,000 pallets

Fonterra Australia is consolidating its Australian distribution network and six warehouses under one facility in Melbourne, following the signing of a 10-year warehouse service agreement with NewCold Advanced Logistics.

Opening in Truganina in July 2017, the 12-storey facility will be capable of holding up to 110,000 pallets — equivalent to filling half the MCG or 260 Olympic swimming pools — and will initially employ around 60 NewCold experts in IT, engineering, software development and management to run the facility 24/7.

Fonterra Australia Managing Director René Dedoncker said that by bringing all third-party warehousing services under one roof, the company will be able to get its dairy foods and ingredients to its domestic and international customers even faster.

“The first of its kind in Australia, the facility is highly automated and, because of its technology, we can be more agile and responsive to our customers’ needs, deliver smaller and more frequent orders and, importantly, improve our service delivery.

“NewCold uses impressive state-of-the-art systems, robots to pick and pack orders, and the ‘dark’ cold storage significantly reduces electricity use.

“Importantly, having all our warehousing services under one roof will help meet the needs of our multihub strategy, which is about playing to our strengths in global ingredients of cheese, whey and nutritional, complementing our consumer and foodservice businesses,” said Dedoncker.

Talking about the new facility and partnership, NewCold Founder and Executive Vice President Bram Hage said this new operation will be one of the very few facilities in the world that is both ambient and temperature-controlled under one roof in a highly automated environment.

“Our Melbourne operations will play a critical role in driving NewCold’s expansion throughout Australia and Asia-Pacific. To partner with Fonterra, the world’s largest dairy exporter, demonstrates our strength in highly automated supply chain management.”

The new facility will:

- operate 24/7
- contain chilled and frozen storage all under one roof
- be located 15 km from the Melbourne port
- reduce land space requirements by 70%
- have a low-oxygen environment that prevents fire risk



## Automated bulk material mixing system

Designed specifically for the fully automated introduction, transfer, mixing and blending of sluggish materials, National Bulk Equipment’s integrated mixing system produces such homogenous blends that downstream production scrap is virtually eliminated.

An NBE lift-and-seal gaylord discharge system, with a dust-tight, custom discharge hood, introduces the material to the transfer bin. An integrated agitator and vacuum pump transfer system supply material to the high-volume material mixer. Within the mixer, an auger mixes material in a 10-gauge mix tube. In-feed scoop blades at the base of the mixing auger, and broad-throw dispersion paddles at the top of the mixing auger, ensure a homogenous and consistent blend supply to downstream processes.

The company’s integrated automation centralises system control, communication, monitoring and reporting to a single UL listed HMI. Rigorous risk assessment procedures work to prevent hazards to those who operate and maintain the equipment, while identifying improvements in physical ergonomics and equipment access points. Expertise in application-appropriate codes, standards and regulations ensure system compliance at start-up.

**Mercer Stainless Ltd**

[www.mercers.co.nz](http://www.mercers.co.nz)



# To keep your **FAST FOOD** on the move...

... you need a reliable source of high quality compressed air delivered with the lowest possible energy costs.

At Southern Cross, we have vast experience in the diverse requirements of Australian industry.

We can advise on and supply the ideal system to suit your exacting production and processing needs.



From 4 - 400 kW  
fixed or variable speed  
air compressors



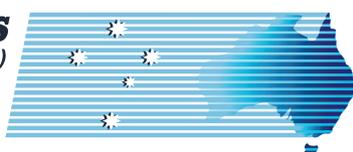
## Are you wasting your energy?

Your current compressed air systems could be wasting up to 50% of generated energy. A comprehensive Southern Cross Air Audit will detect leakage and other problems to clearly demonstrate the savings you could achieve with a full maintenance service or equipment upgrade.

*Call us today*

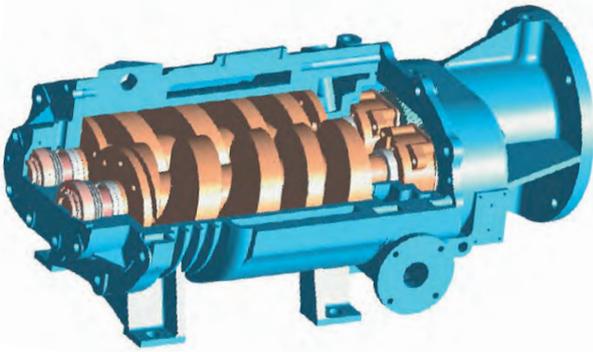
**SOUTHERN CROSS**  
COMPRESSORS (AUSTRALIA)

**Superior Air Power**



\* AIR AUDITS \* DESIGN \* PRODUCTS \* INSTALLATION \* SERVICE

National Sales and Service: **1300 098 901**  
For advice on all your compressed air needs and to see our complete range: [www.southerncrossaircompressors.com.au](http://www.southerncrossaircompressors.com.au)



### Low-energy vacuum pumping systems

The Dynavac screw vacuum pump mechanism comprises two parallel screw rotors driven by a gearbox. There is no internal contact, so the need for lubrication is eliminated, and no water is required.

Gas enters the pump and is progressively compressed, leaving the pump uncontaminated. Power efficiency is good because the mechanism is frictionless and pumps the process gas only. Energy is not wasted in circulating seal water and lubricants throughout the pump chamber.

Features of the screw pump technology include a high vacuum level, contamination-free pumping, low maintenance, the ability to handle large amounts of wet process vapour without harm and low energy consumption.

The range extends from 100 to 3000 m<sup>3</sup>/h in pumping speed and 2.2 to 55 kW in motor size.

**Dynapumps**  
[www.dynapumps.com.au](http://www.dynapumps.com.au)



### Detection of work-hardened stainless steel fragments

Adequate procedures and cutting-edge magnetic separation and metal detection equipment are essential for control of weakly magnetic fragments including work-hardened stainless steel and magnetic stone fragments, maintaining food safety and protecting products and brands.

With an increased focus in hygiene, operator safety and lean manufacturing practices, the necessary combination of both ultrahigh-intensity and properly endorsed magnet systems along with highly sensitive metal detectors and X-ray units provide the food and beverage industry with the necessary tools to successfully control foreign matter detection.

Most stainless steel fragments and wires of 3 mm in size and under are usually work-hardened and often go undetected by metal detectors. Modern ultrahigh-intensity >11,000 gauss certified magnets fill this gap and allow for such foreign matter, including magnetic stone and wear iron, to be extracted magnetically to further reduce the serious risk of contamination, product recall and brand name damage.

Magnattack Global specialises in design and manufacture of ultrahigh-intensity RE80 >11,000 gauss magnet systems of both manual and self-cleaning designs, engineered to ensure fine ferrous metal and fine magnetic fragments are extracted and retained in critical applications both prior to processing and at final packing off of products.

Further advantages of RE80 self-cleaning magnet systems include the overall reduction in nuisance metal detector trips prior to packing, as >11,000 gauss magnet systems, positioned strategically upstream of final magnets and metal detectors, extract most of the foreign ferrous matter prior to the detection process reducing the time and effort involved in locating contaminated product within bulk bags and bins.

In addition, high intensity self-cleaning magnets in strategic upstream positions prior to high impact machinery, such as milling operations, will offer good protection to machinery against risks of damage and dust explosion caused by metal entering high-impact machinery and relieve the load on downstream magnets, making them much more effective.

Magnattack works with food industry engineers to ensure magnet systems are adequately designed and manufactured in accordance with current HACCP and engineering standards.

**Magnattack Global**  
[www.magnattackglobal.com](http://www.magnattackglobal.com)

## Easy as ... **VSS**

The easy way to make your product move — Ask VSS!

Pneumatic, electric and hydraulic flow aids, vibrating conveyors and feeders.



With years of experience we can recommend the best vibrator for your application.

Just ask for our client data request, fill in the numbers and we'll do the rest!

Call us on 1800 300 VSS (1800 300 877) or email [sales@vibrationsystems.com.au](mailto:sales@vibrationsystems.com.au)



ESS P/L Trading as:  
**Vibration Systems & Solutions (Australia)**  
[www.vibrationsystems.com.au](http://www.vibrationsystems.com.au) ABN 34 001 931 746

BRANCHES AND DISTRIBUTORS IN ALL STATES AND NEW ZEALAND



# Voice technology increases warehouse throughput by 80%

Galipo Foods, one of the largest food distribution companies in South Australia, offers its customers biscuits, soups and gravies, sauces and dressings, condiments, oil, pasta, dairy, jams, meat, cereals, bread, seafood, pastries, herbs and spices, grains, drinks, eggs, syrups and more. Operating in the competitive food service space, it is vital that Galipo Foods' warehouse operates at an optimum level in order to deliver the right product, at the right time and in the right condition.

The company wanted to upgrade its picking process without undergoing a complete system replacement, looking for a quicker return on investment via a lower initial outlay.

With Honeywell's Vocollect voice solutions already installed, the solution was to update the system to incorporate Honeywell's voice solutions, including the Vocollect A730 device with an integrated hands-free scanner, Vocollect SRX2 wireless headset and VoiceLink software to connect with Galipo's system in real time.

The upgrade, achieved with the help of VoiceID and Honeywell Sensing and Productivity Solutions, has enabled Galipo Foods to increase productivity by 80%.

Nathan Narayanan, general manager at Galipo Foods, said the voice technology upgrade had increased throughput from 50 million to 65 million units processed each year. He said the company plans to shortly expand the technology to other areas in the business, with a forecast increase to 90 million units



by January 2016. The productivity growth has been achieved without adding additional workers.

"We are very pleased to see that Galipo Foods' voice technology upgrade is already helping them increase productivity and the accuracy of their order fulfilment," said Paul Phillips, ANZ regional manager, Honeywell Sensing and Productivity Solutions. "With increased productivity and accuracy, Galipo Foods can now be confident they are offering the highest level of customer service at all times."

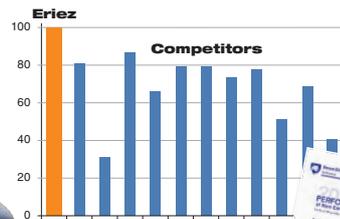
Honeywell Building Solutions  
www.honeywell.com

**PRO GRADE**  
Magnetic Separators

**RE7 Xtreme**  
Rare Earth



Now Even Stronger!



Download the Performance Test Report from our website



en-au.Eriez.com • 61-3-8401-7400



## Tank-mounted scroll technology air compressor

Southern Cross Compressors has expanded its Ganey Scroll series of orbital technology air compressors to include a 4.5 kW, quiet, tank-mounted version. The lightweight, high-output compressor offers a capacity of 0.663/min@8 bar — a higher output than a conventional 5.5 kW, reciprocating, piston type.

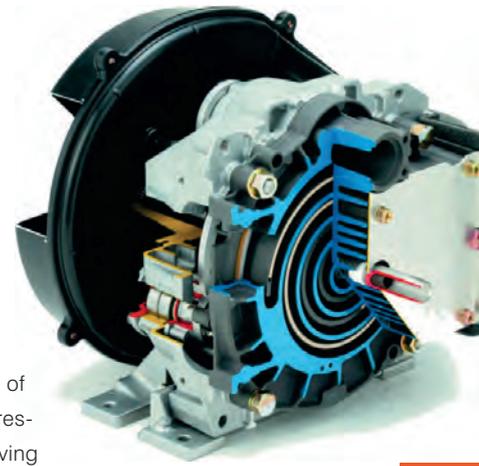


With capacities from 4.5 to 7.5 kW, the range of advanced, lubricated, scroll technology compressors offers energy efficiency with minimal moving parts. The compact air compressors are vibration-free, quiet and reliable.

They are suitable when low noise is a consideration as the dynamically balanced, non-contact orbital scroll results in quiet operation. Being direct drive means there are no drive belts to wear or need replacement, therefore reducing maintenance requirements.

Continuous load capability and an integral aftercooler delivers high-quality, clean air. Advanced control and monitoring technology provides simple, positive operation with built-in temperature and overload protection.

**Southern Cross Compressors Australia**  
[www.southerncrossaircompressors.com.au](http://www.southerncrossaircompressors.com.au)



**Flowcrete**  
 for the world at your feet

### THE EVOLUTION OF FOOD GRADE FLOORING

Flooring is continually evolving to ensure the best hygienic performance in food and beverage facilities...



### THE FUTURE IS HERE!

Flowcrete Australia has developed the only HACCP International certified, antimicrobial, gloss finish cementitious polyurethane flooring system on the Australian and New Zealand market.

**DISCOVER...**  
 THE FUTURE OF FOOD GRADE FLOORING

[www.flowcreteaustralia.com.au/future](http://www.flowcreteaustralia.com.au/future)  
 +61 7 3205 7115 @flowcrete\_aust

## Polymer energy chains and cables

In many industries, there is a huge demand for roller energy chains for high fill weights and speeds that can travel long distances while operating quietly. The low-maintenance P4 system, originally developed for high-speed container cranes, can travel long distances up to 800 m and carry high additional loads of up to 30 kg/m.

The systems are used for high speeds of up to 10 m/s and the autoglide crossbars ensure safe guidance on long travel distances. The energy chains offer a long service life and are abrasion resistant. They are suitable for indoor and outdoor crane technology, automated storage and retrieval systems, plant construction, portal robots, materials handling technology, mining and steel works.

The smaller sizes P4.32 and P4.42 are suitable for green machining processes and storage systems. Compared to sliding friction, rolling friction comes out 75% less, which means they use up to 57% less drive power. Plant and machinery manufacturers have great benefits on loading gantries for automated production processes from 3 m/s, and especially from 3.5 m/s. On travel distances of 40–50 m, the electricity and operating costs are significantly reduced and higher speeds and accelerations are enabled without increasing the noise level.

**Treotham Automation Pty Ltd**

[www.treotham.com.au](http://www.treotham.com.au)





# wirebelt

Experts in product movement

Eye-Flex®
CCure Edge™

**Wirebelt** is the leading manufacturer of stainless steel conveyor belts for product handling and processing. Manufacturing range includes **Flat-Flex®**, **Eye-Flex®**, **Compact Grid™**, **Honeycomb** and **Spiral Woven Mesh**. **Wirebelt** - for conveying, cooking, cooling, covering, drainage, heating and drying applications.

Flat-Flex®
Compact Grid™



**Richard Foot Pty Ltd. Unit 14, 2 Apollo Street,  
Warriewood NSW Australia 2102**  
Tel: +61 2 9979 8311 Fax: +61 2 9979 8098  
Email: [sales@rfoot.com.au](mailto:sales@rfoot.com.au) [www.rfoot.com.au](http://www.rfoot.com.au)

# OLI VIBRATORS

## EFFICIENT DISCHARGE SOLUTIONS



OLI has created a product line of pneumatic vibrators, aerators and electric vibrators specific for flow aids applications. The products has been tested and certified to meet the most stringent, international standards. Reliability and high availability from over 50 subsidiaries worldwide make OLI the international leader in vibration technology.

[WWW.OLIVIBRA.COM](http://WWW.OLIVIBRA.COM)



**DESIGNED FOR MILLING:  
MAX RELIABILITY MOTOVIBRATORS**



**OLI Vibrators Pty Ltd.**  
Factory 4, 3 Gatwick Road  
Bayswater Vic 3153 - Australia  
Tel.: +61 3 8761 6911  
Fax: +61 3 8761 6922  
[www.olivibrators.com.au](http://www.olivibrators.com.au)



## Lift truck

Crown Equipment has launched a lift truck series that combines the benefits of an order picker with the advantages of a counterbalance forklift.

The Crown MPC 3000 Series combines a high-lift, clear-view mast with an outrigger-free counterbalance design and an ergonomic ride-on platform; a combination that creates a versatile, multipurpose lift truck capable of performing tasks usually requiring more than one piece of equipment.

It is capable of travelling up to 12.5 km/h and lifting 1200 kg to a height of 4.3 m. The lift truck can lift full-capacity loads (at a 600 mm load centre) to the full height of the mast.

The all-round solid steel construction is designed and tested to withstand intensive use while the large, long-life load wheels are easily accessible for quick replacement.

The product automatically adjusts cornering speed and acceleration, depending on steer wheel angle, fork height and load weight, for stability. Combined with responsive brakes and a suspended, shock-absorbing floorboard, it maximises operator safety, comfort and confidence.

The truck's layout makes it suitable for order picking as well as replenishing low-level pick slots from high-level storage, an activity that usually requires separate reach trucks and high-lift trucks.

**Crown Equipment Pty Ltd**

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



## Epoxy floor coatings

Rhino Linings Australasia produces a range of 100% solids epoxy floor coatings. The spray or brush-applied industrial surface coatings will not crack, peel or warp. The coatings are highly resistant to impact and abrasion, and are almost impervious to oils, fuels and a wide range of chemical solvents.

They are suitable for industrial workplaces, such as research laboratories, food processing plants or hospitals, where a range of additional stresses are placed on flooring, such as exposure to corrosive substances like fats, hot oils, blood, sugar solutions and food acids, thermal shock and rigorous cleaning processes using caustic solutions.

The application process is suitable for remedial projects, where the coating has to be applied around, under or through existing equipment or furniture. The coatings can be applied in one application to any thickness, with rapid curing time and no smell.

The appearance of the flooring can be modified for health and safety requirements. Bright colours can differentiate between various zones and can highlight hazardous areas, while glossy tones can make the working environment more pleasant for the staff.

The seamless, impervious finishes stop contaminants hiding within hard-to-clean gaps where they can multiply.

**Rhino Linings Australasia Pty Ltd**

[www.rhino linings.com.au](http://www.rhino linings.com.au)

Quality  
Factory

Quality  
Process

Quality  
Product

Designing and Building World Class  
Food Manufacturing Facilities

"Keeping Food Manufacturing Alive in Australia"

[www.rmrprocess.com](http://www.rmrprocess.com)  
 +61 3 9023 9130

## HACCP flooring choice for White Rabbit Brewery

It was essential that the production area in the new White Rabbit Brewery in Geelong, Victoria, always looked fresh, inviting and unblemished, as visitors would be taking tours around the open-plan brewery.

The company installed a bright Coral Red, antimicrobial-enhanced, polyurethane coating in its brewery area to meet the site's practical, hygienic and aesthetic requirements.

400 m<sup>2</sup> of both Flowfresh SR and Flowfresh Sealer from Flowcrete Australia's HACCP International certified food-grade flooring range was installed within White Rabbit's brewery. The bactericidal additive Polygiene is incorporated within every Flowfresh system, empowering it with the ability to eliminate up to 99.9% of bacteria in contact with the floor.

To assist other breweries in ensuring that their floors are able to maintain a high performance surface on which to safely and hygienically produce large quantities of the amber nectar, Flowcrete Australia has produced a white paper — Advantages of Polyurethane over Epoxy in Production Areas.

The white paper explores the pros and cons of epoxy resin and polyurethane systems, two of the most common types of brewery floors, examining how they fare when faced with specific demands and how they can be tailored to support the site's daily operations.

Flowcrete Australia Managing Director Sean Tinsley said: "The brewery industry has to safely and effectively manage the large-scale and complex operations of a \$4.3 billion industry, where 600 tonnes of domestically grown hops have to be turned into enough high-quality beer to meet 93% of the nation's consumption.

"To achieve this requires facilities that can cope with exceptionally large volumes of produce and a high turnover



rate. We've created our new white paper to help brewery professionals ensure that the floor beneath their feet is able to maintain an effective surface that will support the site's activity safely, hygienically and for the long term."

Cracked, broken or ailing surfaces can lead to contamination issues within a brewery, and the movement of bulky barrels, warm conditions, heavy equipment and the potential spillages of corrosive by-products can all cause an insufficiently robust coating to fail.

To help specify a stout floor that is up to the task, the white paper explains how polyurethane flooring materials can be used to create finishes able to withstand whatever the beer production process can throw at it. The seamless, impervious nature of polyurethane floors combined with the ability to incorporate coving and drainage also means that brewery operators can quickly and easily wash away the grains, grime and dirt that accumulate during a busy working day.

In the white paper, brewery industry professionals can also find out about the criteria that floors need to provide in order to meet regulations such as the Australia New Zealand Food Standards Code or to implement an effective Hazard Analysis and Critical Control Points (HACCP) Food Safety Management System.

The white paper highlights the importance of choosing HACCP standard building materials that will assure regulatory bodies, clients and consumers that the beer has been produced within a facility that adheres to the highest hygiene principles.

To find out more about the advantages of polyurethane flooring materials within a brewery environment visit <http://flowcreteaustralia.com.au/media/6763/flowcrete-australia-advantages-of-polyurethane-over-epoxy-in-production-areas-july-2016.pdf>.

Flowcrete Australia  
[www.flowcrete.com](http://www.flowcrete.com)





## Sensor configuration mobile app

SICK Open Portal for Applications and Systems Engineering Tool (SOPAS ET) has been adapted to mobile devices. The SOPASair application is able to configure more than 80 of

SICK's sensor product families, as well as prepare them for industrial use in factory, logistics and process automation.

SOPASair enables identification and activation of SICK sensors within a network using mobile devices, without the need for a cable connection. Supporting iOS and Android operating systems, the sensors can be easily configured and visualised. To do this, the product offers the touch options typically used in apps, such as pinching, scrolling or switching views. The app visualises the current operational status, process data and parameter values of sensors, and enables the relevant sensor configuration to be modified if necessary. Bidirectional communication enables parameter sets to be saved and restored to a sensor if necessary, or transferred to sensors with a similar design or application. The product makes it possible to check the configuration and visualisation options in simulation mode, even when there is no physical connection to the sensor.

Mobile devices running on iOS or Android operating systems can connect to sensors via ethernet, Wi-Fi and Bluetooth LE. Devices running on Android are also able to access sensors via USB and IO-Link. In addition, the app functions within common browsers and can therefore be operated on a PC.

**SICK Pty Ltd**

[www.sick.com.au](http://www.sick.com.au)

**ALWAYS KNOW WHERE YOUR VEHICLES ARE.**

Vehicle tracking • Fleet optimisation • Workforce management • Green and safe • Business integration

## VEHICLE TRACKING MAKES IT EASY FOR YOUR TEAMS TO BE ACCOUNTABLE FOR TIME SPENT ON THE ROAD

With vehicle tracking you can justify time, mileage and the locations of your vehicles to your management, your clients or the tax office. WEBFLEET® brings your drivers and office staff closer together, working better as a team.

Call **02 8023 8554** or E-mail [sales-au.business@tomtom.com](mailto:sales-au.business@tomtom.com) to arrange a **free** demonstration of WEBFLEET®.

[www.tomtom.com/telematics](http://www.tomtom.com/telematics)



© 2015 TomTom Telematics B.V. TomTom, and the logo are among the trademarks or registered trademarks owned by TomTom N.V. and its affiliates. Our limited warranty applies to this product. You can review it at [www.business.tomtom.com/legal](http://www.business.tomtom.com/legal)

## Keeping 9300 pallets of meat cold



One of Australia's leading national and export quality meat suppliers, Ralph's Meat Company, operates its own processing and retail facilities, in addition to supplying export markets in more than 20 countries. The company's facility at Seymour, 97 km north of Melbourne, employs around 150 people and has a capacity of about 500 head of cattle per day.

Until recently the company transported its meat from Seymour to a third-party cold storage facility that would unload individual boxes onto stillages/steel racks, blast freeze them and then, three days later, stack the boxes of frozen meat onto pallets for either holding/inventory or containerising.

Being aware of the inherent risks of handling of transporting its product to a third-party facility, Ralph's Meats consulted Refrigeration Services about supplying and installing a two-stage ammonia refrigeration system for a 9300-pallet freezer/chiller meat freezing and storage facility.

Ralph's had some clear objectives:

- Performance
- Reliability
- Safety

- Operating cost savings
- Ease of maintenance

By incorporating the refrigeration plant on-site, Ralph's knew it would have better control of its products and, through its HACCP plan, be able to ensure that the quality of the meat being processed in the plant and delivered to consumers, both locally and internationally, would never be compromised.

Ralph's Meat Company operates its own Meat Safety Quality Assurance (MSQA) program, which is monitored by a DAFF-appointed veterinary officer on a daily basis. The quality program is a HACCP-based system approved by DAFF which is a process control system designed to identify, prevent or control microbial and other hazards in meat processing. Steps are designed to prevent problems before they occur and to correct deviations as soon as they are detected.

Refrigeration Services supplied and installed an ammonia holding blast/freezer system that holds up to 9300 pallet spaces of boxed meat.

*Refrigeration Services (VIC) Pty Ltd*  
[www.refrigerationservices.com.au](http://www.refrigerationservices.com.au)

### Low-profile bulk bag discharger

Flexicon's BULK-OUT half-frame bulk bag dischargers feature frames of variable heights and offsets to fit restricted areas previously utilised for the dumping of smaller containers such as sacks, pails, drums, boxes and bins.

The low-profile dischargers are engineered to straddle downstream blenders, feeders, tanks or other equipment in areas with limited headroom, restricted floor space and/or obstacles that would preclude the use of conventional discharger frames.

Lacking an upper frame, the discharger provides overhead space for suspending bulk bags using a forklift or plant hoist. It can also be configured to support new or existing bulk bag lifting frames that can be connected to bags at floor level and then forklifted onto the half frame within centimetres of the ceiling.



The bag-to-discharger interface consists of a SPOUT-LOCK clamp ring positioned atop a pneumatically actuated TELE-TUBE telescoping tube, allowing dust-tight connections.

The high-integrity, dust-tight seal between bag spout and clamp ring enables full-open discharge from bag spouts of all popular diameters, eliminating the need for iris valves.

The discharger is also equipped with FLOW-FLEXER bag activators that raise and lower opposite bottom edges of the bag at timed intervals, loosening compacted materials and promoting material flow through the bag discharge spout.

Product contact surfaces are of stainless steel, with frame construction of carbon steel, or stainless steel finished to industrial, food, dairy or pharmaceutical standards.

**Flexicon Corporation (Aust) Pty Ltd**  
[www.flexicon.com.au](http://www.flexicon.com.au)



## Intelligent vacuum pumps

The GHS 350-900 VSD+ Series is a range of intelligent, oil-sealed rotary screw vacuum pumps with variable speed drive (VSD) technology from Atlas Copco.

Based on the plug-and-play design principles of Atlas Copco compressors, the vacuum pumps have been designed by vacuum engineers to deliver peak performance at operating pressure.

The pumps provide superior performance against benchmarked oil-sealed and dry vane vacuum pump technologies, and offer increased efficiency through screw technology, VSD and innovative motor design.

Providing quiet operation, with noise levels around half that of comparable technologies, the pumps also offer reduced environmental impact due to high oil retention at all operating pressures.

**Atlas Copco Compressors Australia**

[www.atlascopco.com.au](http://www.atlascopco.com.au)

## Load cells

HBM has a range of standard load cells which are suitable for use in hazardous areas where there are flammable gases, liquids or combustible dusts. They comply with the IECEx directive for hazardous zones 1 + 21 and 2 + 21.

IECEx complying load cells include single point, pendulum, ring torsion, bending and shear beam and tension and compression. The product offers good setting value reproducibility (zero signal, full scale, value) and easy integration into plant and process sequences. As well as this, it has no mechanical clamping elements that are subject to wear.

**HBM Packaging Technologies**

[www.hbm.com.au](http://www.hbm.com.au)



## LET ENMIN KEEP YOUR BUSINESS MOVING IN THE RIGHT DIRECTION

Metering & Storage  
Hopper Feeders  
Fines Removal, Screening  
& Alignment Feeders

- Improve your plant & operator efficiencies
- Customised solutions manufactured here in Australia
- Designed for the food industry & to hygiene standards
- Superior, maintenance free equipment that will improve your profits!

We sell solutions, not just products!

Call (03) 9800 6777 or  
visit [www.enmin.com.au](http://www.enmin.com.au)





### Sound-absorbing foam

Stratocell Whisper from Sealed Air is a sound-absorbing foam that offers good noise control in rigorous indoor and outdoor industrial or commercial environments. It is suitable for general plant rooms, factories or warehouses where reverberant noise is a problem.

The product is a closed cell laminated polyethylene foam which is fibre-free, flame retardant and resilient to water and humidity. The acoustic sound-absorbing panels control noise and allow workers to speak and hear more effectively, providing a safer working environment.

The lightweight product is washable and durable, and will not deteriorate or promote corrosion. It is available in black and white 1.2 x 2.4 m sheets (50 mm width) that can be cut or shaped to fit. The foam also comes with a Class A alpha w noise rating of 1.00.

**Soundblock Solutions**

[www.soundblock.com.au](http://www.soundblock.com.au)

# Make your workplace safer!

Latest power pallet movers from Mitsubishi



- ✓ Easier and safer to use than manual pallet jacks
- ✓ Ideal for use in confined space
- ✓ Acceleration, top speed and braking characteristics all programmable to suit every need



131 652

VISIT OUR WEBSITE [www.mlaholdings.com.au](http://www.mlaholdings.com.au)

# Brexit

## and the UK food and beverage industry

Robin Wyers, Chief Editor, Innova Market Insights

The UK exit from the European Union will lead to immediate questions for the food industry in terms of tariffs, quotas and farmers' support. Any 'divorce' from EU systems will take time, of course — at least 2 years. However, the impact on investment, should this decision be confirmed and ratified, will be immediate.

**T**he effect on the exchange rate (£ to \$ as well as Euro) can already be seen. The pound has already dropped 8% since it became clear that a Brexit vote would occur, with the value at its lowest rate since 1985.

“Overall it is clear that since the UK food industry is a large exporter to Europe, a lower exchange rate will be beneficial short-term. However, this also means that dollar-denominated raw materials will be that much more expensive, as will imports — and the UK is one of the biggest import markets in Europe,” noted Innova Market Insights London-based analyst Heather Johnston.

“Tariffs and quotas will not change immediately but any negotiation is highly unlikely to bring better terms than previously as a member of the EU, and of course if the UK wants to sell within the EU, CE standards and all the other food safety, quality and nomenclature rules will still apply,” she added.

“Farmers are well aware of their dependence on the Common Agricultural Policy (CAP) so the results in Scotland and Northern Ireland were undoubtedly influenced. Global pricing is bad news for dairy, and not very good news for anyone else. There are many places that can produce food more cheaply than the UK and it would take the erection of some very stiff trade barriers (and a big increase in food prices) to prevent imports doing to British agriculture what they did in the 1930s. There's a reason so many UK houses were built then — agricultural land had no value,” she noted.

The Brexit impact in the food industry is likely to be profound. According to the UK trade body Food and Drink Federation (FDF), 71% of its members wanted to remain part of the Union. Overall most believed it is preferable to remain with the status quo, due to concerns that should the UK exit the EU then they

will have to agree to EU food regulations should they want to export to the EU, but will have no role to play themselves in how regulation is formed.

Ian Wright CBE, director general FDF, responded to the vote to leave by stating: “In March we released the results of a poll of our members which showed 70% support for Britain to remain in the EU. It's inevitable in the light of those results that the majority of FDF members will regard this as a disappointing result for the food and drink industry.

“Now FDF will work on behalf of our members and all those across our industry to find a way through this very challenging period that we face. We'll focus on working with the government to understand what this means for trading, market access and regulation to secure the best outcome for British food and drink manufacturing businesses and their customers.”

The business of food employs approximately 400,000 people in the UK and is Britain's largest manufacturing sector, according to *The Guardian*. Of those workers, around 38% are foreign-born immigrants, a key point being raised by supporters of the Brexit who would like to see much stricter immigration policies throughout their nation.

Since joining the EU, the common policies held for agriculture, trade and movement of goods have been key to the UK's food system. The Common Agriculture Policy itself swallows up 40% of the total EU budget. In turn, the other nations of the European Union have been integral trade partners for Britain and have been the UK's primary export market. Additionally, the British people depend on their fellow European states to provide a quarter of what they consume every year.

Because of these deep economic ties, many British leaders who oppose the Brexit fear the trade repercussions the food

industry could face. Elizabeth Truss, the Secretary of State for environment, food, and rural affairs, has warned that a leave vote would be a risky “leap in the dark” that could endanger the livelihood and success of the nations’ farmers and food distributors.

Last month Truss said that the food and farming industry could benefit from an extra €360 billion in EU funding to help SMEs and larger processors grow their businesses. She pointed out that between 2011 and 2015, dairy companies in the UK invested just €468m in their businesses, compared to €1.4bn in Germany and €785m in Ireland — highlighting the opportunities that additional funding could bring to the UK industry.

Environment Secretary Elizabeth Truss said: “Unlocking access to our share of €360 billion of European funding will help unleash the talent and ambition across our world-leading food and farming industry, from supporting punchy start-ups to developing the very latest technology in production methods.

“Last year our dairy exports hit £1.4 billion so we know there’s a growing appetite for quality British dairy products. The funding will help innovative businesses produce more high-demand products such as yoghurts and cheeses in the UK, creating more jobs, increasing productivity and making the sector more resilient.”

Few fellow EU markets will be more impacted by the decision than the Republic of Ireland. According to Bord Bia (the Irish Food Board), the decision by the UK to exit the EU represents a significant challenge to Ireland’s agri-food industry. Aidan Cotter, chief executive of Bord Bia, has pledged that Bord Bia would continue to support and work with industry to maintain and build on this vital trading relationship against the background of any new trading arrangements that will be negotiated.

“The UK is Ireland’s largest customer for food and drink. Despite its continuing and expanding global reach, the UK has continued to represent a growth opportunity for the Irish food and drink industry, driven by a strong economy and an increasing population. The UK is a net importer of food and Ireland

“ There are many places that can produce food more cheaply than the UK and it would take the erection of some very stiff trade barriers (and a big increase in food prices) to prevent imports doing to British agriculture what they did in the 1930s.



as an exporter is considered a perfect match. The immediate focus of food and drink exporters concerns the development in the sterling versus euro relationship and how to manage the increased volatility that has emerged following the vote. The resilience of the Irish food sector, the longstanding and strong trading relationship between Ireland and the UK, and the close ties between both countries will help the Irish food industry navigate through these uncertain times.

“Our London office is in close engagement with Ireland’s leading customers across the UK and we will work closely with industry and with the Department of Agriculture, Food and the Marine as negotiations commence,” concluded Cotter.

Finally, the fallout from the UK’s exit from the EU will also be felt in the product development space. “Other EU markets are the leading destination for UK food products and uncertainty about potential tariffs returning could impact exports,” noted Lu Ann Williams, director of innovation at Netherlands-headquartered Innova Market Insights. “But the UK has traditionally also been a leading beacon for new product innovation in the food industry, often driving trends in convenience and premiumisation, through its highly developed on-the-go market,” she added. “With more isolationism occurring as the result of the Brexit and potentially reduced exports, it’s possible that we will see less creativity spread through to the continent too.” 

Innova Market Insights  
www.innovadatabase.com



Compressed Air | Vacuum | Blowers | Industrial Gas | Service

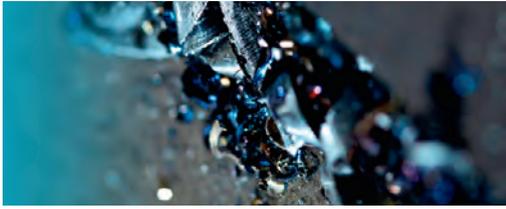
## MANUFACTURED TO YOUR STANDARDS

To help reduce your risk and protect your reputation, we became the first compressor manufacturer with ISO 22000 certification. All our Z air compressors are certified Class 0 - 100% oil-free for your peace of mind. Call today 1800 023 469



## Magnet validation

Product recalls, brand name damage, foreign contamination and equipment damage are all consequences of below-standard, low-strength or inadequate magnetic separation equipment. Measures should therefore be taken to ensure that the magnet strengths are



maintained, placed in the right location and positioned correctly within the production line.

Annual testing and evaluation of magnets in accordance with an HACCP International program and the current 0909MAGSEP 1-2010

Food Safety Standard will ensure they are within specification, and in addition, flag any areas of concern and provide the necessary steps to correct issues such as magnet strengths below tolerance of specification, magnet damage, related contamination and hygiene risks and inadequate product stream coverage. This annual check not only ensures magnets are operating to necessary standards for final packing protection but also ensures minimal damage, costs and downtime to critical processing equipment.

AMR testing representatives are authorised technicians, trained to carry out endorsed services using a currently calibrated gauss meter traceable to a NATA accredited laboratory. This specified service delivers a quality HACCP-endorsed report containing realistic and practical magnetic separation solutions keeping users aware of the latest technology to assist in maintaining product security and brand protection.

**Active Magnetic Research Pty Ltd**

[www.amrconsulting.co](http://www.amrconsulting.co)

## Solenoid valves

The Rotork Instruments division has added a complete range of solenoid valve products with the acquisition of M&M International.

The range includes general-purpose solenoid valves, air-actuated piston valves, automatic drain valves, connectors, coils and customised instrumentation solutions suitable for commercial and industrial flow control industries.

**Rotork Australia**

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

# Do you need a PREMIUM high speed door?

Flexible PVC



Transparent



Insulation / Security





processing  
packaging  
warehousing  
coolrooms  
freezers

Select from our complete range of Australian made, or premium German products

## Free call 1800 281170

Web [www.dmf.com.au](http://www.dmf.com.au)  
 Email [sales@dmf.com.au](mailto:sales@dmf.com.au)

DMF are Australian agents for

**EFAFLEX**   
*safe high-speed doors*





## Blower controller

Now available for blower applications, the Sigma Air Manager 4.0 (SAM 4.0) enables optimal coordination and control of all components within a blower station to meet the user's requirements. The real-time gathering, transmission and management of in-process operating data enables users to anticipate faults and act before they occur.

SAM 4.0 forms the core of a blower station and is the key technology for opening up access to the services that Industry 4.0 will have to offer.

The 12" colour touch screen shows whether the station is in the green zone in terms of energy efficiency. It can also display and analyse pressure data, air delivery, performance, maintenance messages and any fault messages, past or present. A network connection makes it possible to work with the data on a PC.

In addition, multidevice control opens up possibilities for the advance planning of blower maintenance. It is possible to initiate maintenance work before faults occur, helping to avoid downtime and the further damage that faults may cause.

The onboard sensors in the Kaeser machines, and the Sigma Control 2 compressor control system, collect process data and forward it to SAM 4.0 in real time. With special software, the data is then forwarded to the Kaeser Data Center and subjected to real-time analysis. The Kaeser Data Center performs central monitoring and handles system messages, initiating predictive maintenance measures as needed.

**Kaeser Compressors Australia**

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

## Manifold

The SY5000 from SMC Pneumatics is a manifold (valve bank) with an IP69K rating. The manifold was designed to satisfy the hygienic requirements of the food industry. The unit is suitable for wet areas and can withstand washdown and cleaning.

Users have the ability to install valves outside the protective panel and close to the actuators for good control. The device is lightweight and comes in a small package. It is corrosion-resistant and easy to clean and maintain. It offers compact installation as there is no gap between stations.

The unit is available with options of rubber or metal steel valves. Pressures from -100 to 700 kPa are achievable in the rubber seal, with the metal seal operating at up to 1000 kPa. It also has an optional power saving coil which draws as little as 0.1 W.

**SMC Pneumatics (Aust) Pty Ltd**

[www.smcaus.com.au](http://www.smcaus.com.au)



## Customisable checkweighing system

A&D Australasia's Inspection Systems Division has customised its EZICheck system to produce a high-capacity checkweigher. The final outcome was an end-of-line weighing system comprising an infeed conveyor, a weighing conveyor, a control unit and a push ram rejecter, with a throughput of over 30 pieces/min with  $\pm 0.02$  kg accuracy.

Able to weigh 10 kg of produce packed in re-usable plastic crates or cardboard boxes, the checkweigher offers intelligent storage of product information, with easy extraction for quality assurance, and can integrate with existing lines and equipment.

With a robust design constructed of food-grade stainless steel, the system controls, including the large colour touch-screen interface, are user-friendly.

The benefits of the system include real-time monitoring of product weight deviations, improved QA and QC reporting and moderation of overfilling and wastage.

**A&D Australasia Pty Ltd**

[www.andaustralasia.com.au](http://www.andaustralasia.com.au)

# Roxset™

**HEALTH AND SAFETY FLOORING**  
SLIP RESISTANT • ULTRA CLEAN • IMPERVIOUS



**1800 ROXSET**  
1800 769 738  
[www.roxset.com.au](http://www.roxset.com.au)



Do you need **flooring** for your **Food Facility**?

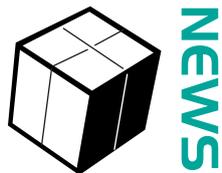
Food Factories, Meat Processing Facilities, Bakeries, Hotels, Nursing Homes, Hospitals, Restaurants, Retail Outlets, Seafood and all other Safety Surfaces.



**packaging, labelling  
& coding**



# Packaging



## 2016 APPMA Scholarship winner

The winner of the 2016 APPMA Scholarship is Integria Healthcare Packaging & Process Improvement Specialist Michael Seaman.

Seaman is extremely passionate about packaging and has a broad understanding of its applications and implications, which the judges believe will greatly assist his studies.

"The impact of packaging on, and within, business continues to have me hooked. Moreover, the opportunities to impact both product and the environment, through the choices made on packaging-related matters, reinforces that the packaging arena is for me. Put simply, I love working in the field of packaging, and my desire to continue the journey of learning, and applying those learnings, continues to grow," said Seaman.

Seaman will commence his Diploma in Packaging Technology this year.



## Volunteer opportunity: be part of the history of packaging

Do you remember any of these packaging items? Do you want to delve into the history of packaging while you catalogue items for an online packaging history database?

The Australian Institute of Packaging (AIP) has recently agreed to collate the personal packaging collection of a gentleman in Adelaide so that it is archived in the manner it deserves — but it needs your help!

A packaging collector from South Australian has amassed an extraordinary collection of approximately 3000 pieces. Concerned it might be lost on his passing, he loaded it up in a truck and personally drove it to Melbourne so that the industry could archive his collection.

The AIP is now seeking volunteers to help catalogue the packaging collection. Ideally, participants would have a wide knowledge of packaging, a measuring tape, a vernier or micrometer, a weighing scale, a digital camera and a laptop. You will work in teams of two (one person to measure, one to record) in South Melbourne and the end result will be a catalogue of Australian packaging items across a broad industry range.

If you have some spare time — even an hour will do — and would like to contribute to this worthwhile project, please email the AIP National Office on [info@aipack.com.au](mailto:info@aipack.com.au).



## Label detects counterfeiting or tampering

Oxygen-sensing nanoparticles doped into food labels could be used to detect tampering or adulteration according to researchers from Xiamen University and the Fujian Institute Research on the Structure of Matter in China.

Many foods such as meat, potato chips and fruit, are vacuum or modified atmosphere (usually nitrogen or carbon dioxide enriched) packed where oxygen is excluded or reduced. The Chinese researchers have developed a simple and effective way of revealing if the oxygen content of the package has changed. They incorporate honeycomb-like nanospheres made from commercially available polymer into the label. The nanospheres change colour when exposed to oxygen so if the product is tampered with a colour change will be visible in the label.

"To the best of our knowledge, this is the first anti-counterfeit material that undergoes a colour transition stimulated by oxygen content," write the authors of the paper, which is published in the journal *Sensors and Actuators B: Chemical* (September 2016 edition).

They suggest that their technique for manufacturing the nanoparticles is relatively low cost and environmentally friendly compared to the production of other oxygen-sensing materials.



Image courtesy of Connie Ma (via Flickr) under CC BY-SA 2.0

Image courtesy of Mike Mozart (via Flickr) under CC BY 2.0



# Pack & Seal Solutions for every type of kitchen



Eye catching and inviting food packaging.  
Simple to open and tamper evident.  
Microwaveable, freezable and conventional ovenable.  
Robust, purpose built sealing machines, for busy kitchens.

Visit us at Fine Food Australia;  
12th-15th September  
Melbourne Convention  
and Exhibition Centre  
Stand HH44



**1800 786 340**

Free equipment trial:  
<http://ad.confoil.com.au/trial>



## Krones PET line runs hot and cold for Suntory Garuda

In Indonesia, increased purchasing power driven by the country's buoyant economy has led to a rise in demand for PET-bottled drinks. Responding to this demand, beverage company Suntory Garuda has introduced a number of new tea-based beverages, manufactured at its facility in Surabaya on the Indonesian island of Java.

In 2012 Suntory Garuda launched green tea beverage Mirai, following it in 2013 with Oolong tea-based Mytea. Together with the carbonated tea beverage Mountea Sparkling, these products have proven very popular in Indonesia. Both Mirai and Mytea are packaged in 450 mL bottles, while Mountea Sparkling is sold in 330 mL bottles.

There is one significant difference in the production process for the three beverages: the still teas, Mytea and Mirai, are sensitive beverages and as such have to be hot-filled whereas the carbonated Mountea Sparkling is cold-filled.

### Dual capability: hybrid line for hot- and cold-filling

To maximise efficiency of their operation, Suntory Garuda chose a hybrid line from Krones in 2014. The technology combines hot-filling of teas and cold-filling of carbonated soft drinks.

The hardware comprises a blow-moulder/filler Contiform monobloc for CSDs and hot-filled products. The electropneumatically controlled filling valves of the Modulfill VFS work with two filling speeds, for both hot- and cold-filling, first fast and then slow. A swirl insert has been installed at the valve's outlet, which guides the product to the container's inside wall, reducing turbulence in both the liquid film and foaming while providing higher accuracy.

The PET containers are pressed against the valves for filling. The cold-filling function for CSDs is preceded by CO<sub>2</sub> pressurisation, followed by a settling phase, and completed by container sniffling. For hot-filling of still beverages, pressureless filling is also possible. So the filling valve can handle soft drinks, juices and water, both still and carbonated, plus hot-filled beverages and drinks with a pulp



content. The fill quantity is determined volumetrically, using flow meters, with any surplus product returned directly into the valve.

### 36,000 containers/h

The Contiform H blow-moulder for hot-fill containers is supplied with preforms by a Contifeed preform feed unit, into which a rotary preform inspector has been integrated. The blow-moulded containers are passed to the filler by servomotor-driven starwheels on Monotec columns.

The Modulfill VFS, with its 96 filling valves, has an hourly output of 36,000 containers. Downstream of the Contiform Bloc, a Checkmat FM-X inspects the containers for correct fill level using gamma-rays.

### Complete dry end from Krones

The full containers are turned by 90° and briefly transported lying on their sides, so that their head space as well as the closure's inner side are sterilised by the hot product.

The bottle flow is then distributed among two tracks, before being fed into a Linadry drier and the downstream Sleeveomatic labeller to apply full-body sleeves which are shrunk onto the containers by a Shrinkmat steam tunnel. The finished containers are dried then fed into a Variopac Pro W carton packer creating 24-bottle cartons.

The hybrid line replaced an existing 10,000 bph PET line and has coincided with a weight reduction of the 450 mL hot-fill bottle from 26.5 to 21 g.

The Krones hybrid line operates at peak times with an efficiency of 92%. Since the Mirai and Mytea products are both filled in identical hot-fill bottles, all that needs to be done at a product changeover is to run a CIP procedure. When the line is changed over from hot-fill to cold-filling the carbonated Mountea Sparkling drink, the moulds in the Contiform also have to be replaced with those for the 330 mL bottle.

Krones (Thailand) Co Ltd  
www.krones.co.th



## Emulation software for fast barcode label printing

Honeywell Sensing and Productivity Solutions has released ZSim2 emulation software that facilitates fast barcode label printing and simplifies printer upgrades.

The software platform is compatible with the Zebra ZPL II printer command language. Available on most Honeywell printers, the software is designed for easy installation and configuration. It prints labels that are virtually identical to those printed by other devices, according to the company.

The software includes emulation tools to improve printing capabilities like font matching.

**Honeywell Ltd**  
[www.honeywell.com.au](http://www.honeywell.com.au)



## Colour sensor

The CSM colour sensor from SICK detects and monitors objects on the basis of their colour. The sensor is suitable for applications where colour characteristics need to be detected reliably and installation space is limited.

The small CSM colour sensor can be set using a simple teach-in method, while the IO-Link function enables intelligent diagnostics, visualisation of sensor parameters and straightforward format changes. Thanks to a switching frequency of up to 2 kHz, the CSM is also suitable for use with high-speed machines and manufacturing processes.

The sensor utilises single-colour LEDs (RGB) to blend together to match all colour hues. The light is transmitted to the object to be tested and the sensor calculates the colour coordinates from the reflected beam and compares these with the previously stored colour reference values. The technology is used in different applications such as packing detection without print marks, process control in the printing industry, the identification of tubes in the pharmaceutical industry and colour verification on sewing thread spindles.

**SICK Pty Ltd**  
[www.sick.com.au](http://www.sick.com.au)

## DFC Packaging Suppliers Of Shrink Films, Shrink Sleeves, Packaging Films, Lidding Films, And Associated Machinery, With Full Technical Support.



Tray Lidding



Complete VFFS Packing Line



Check Weighing & Metal Detecting



L-bar Sealers & Shrink Tunnels



Rotary Table



Conveyors



Flow Wrapping



**dfc packaging**  
 group of companies  
 03 9701 2000  
[www.dfc.com.au](http://www.dfc.com.au)

Vic. Office  
 22 Summit Rd  
 Noble Park, 3174  
 03 9701 2000  
[sales@dfc.com.au](mailto:sales@dfc.com.au)  
[www.dfc.com.au](http://www.dfc.com.au)

NSW. Office  
 5 Healey Circuit  
 Huntingwood, 2148  
 02 886 2450  
[sales@dfc.com.au](mailto:sales@dfc.com.au)  
[www.dfc.com.au](http://www.dfc.com.au)

## Question time ...



## Which is better coding technology — laser or inkjet?

Laser's rapid improvements and reduced capital costs have opened up its applications, but despite similar results neither does the other's job completely. This quick Q&A will help you compare 'apples and oranges'.

**Q. If they're so different, how do I compare laser and inkjet?**

A. Firstly, evaluate if the technology actually meets your application. Then, work out the total cost of ownership over 5–7 years.

**Q. What do I need to think about?**

A. Your application (line speeds, volume and the message to code), the end result (mark contrast and permanency needed), the equipment's ability to integrate into existing production lines, capex and total cost of ownership, OHS (laser has specific safety requirements), ease of use and maintenance.

**Q. Don't inkjets need lots of maintenance? And have big ongoing consumables costs?**

A. They used to, but not any more! As the greatest improvements, these are actually now strengths, along with robustness (eg, from hermetically sealed print-heads).

**Q. What is laser technology best suited for?**

A. Laser is perfect for permanent marks where presentation is critical, such as wine, and in high-volume applications where its higher capital cost is balanced by lower ongoing operational costs (think two shifts/day with production rates of 100+ products/min). However, technology improvements and lasers launched for niche markets are making lasers available to lower-volume manufacturers, too.

**Q. Do lasers work on anything?**

A. Because they don't use consumables, laser coding is best read when there's a contrast between the substrate's outermost colour and the layer revealed.

**Q. What are some of the common applications for inkjet?**

A. Drop-on-demand (DOD) large character inkjets are commonly used in secondary packaging, fibre cartons and shrink wrap, say for product descriptions and batch numbers on cartons. Continuous inkjet (CIJ) excels in uses for small character text and primary packaging at high speeds (such as use-by dates and batch numbers on products); while high-res inkjet is typically used for graphics and human-readable text, generally on secondary fibre packaging or letter addressing. Due to advances in ink technology, they are also being used in primary-packaging applications.

**Q. Can inkjets barcode?**

A. Yes, they can; however, retailers don't favour GS1-128 or ITF-14 barcodes printed with any inkjet technology directly on shipper cartons. Label print and apply is an option here.

Brought to you by  
Matthews Australasia

**Low-backlash transmission**

The low-backlash TQF series of precision planetary flanged gearboxes from Bonfiglioli provides high torsional stiffness for applications such as industrial automation.

The gearboxes are suitable for applications which require high dynamic characteristics and the ability to reliably handle a high number of start-stops and reversals.

The flanged design is suited to machine tools, packaging machines, precision rotary axis drives, travelling gantries, columns and material handling axis drives, as well as tasks requiring high positioning accuracy, dynamic cycling operations, tilting movement and compact solutions for motion control.

Suitable applications include working centres for metal, wood, marble, stone, printing, paper and glass products across diverse industries.

The series is available in five sizes delivering rated output torque ranging from 30 to 800 Nm and acceleration output torque from 45 to 1200 Nm.

The monobloc planet carrier ensures higher radial load capability as well as higher torsional stiffness, offering a high safety factor for transmissible torque and increased dynamic response. Bearings have been selected and sized to suit the torque rating of the gearbox and provide quieter operation. The series features a high level of mechanical protection (IP65), a flanged output (similar to EN ISO 9409) and a low level of acoustic pressure.

Features of the range include: high flexibility for input flanges; modular design to comply with individual needs including features such as smooth shaft/key shaft, standard and reinforced bearings; standard and low backlash and universal design to allow any mounting orientation; servo sizing tool to avoid oversizing.

**Bonfiglioli Transmission Pty Ltd**

[www.bonfiglioli.com.au](http://www.bonfiglioli.com.au)

**Shrink wrapper**

The Polypack Clearprint shrink wrapper can wrap either individual items or tray-supported products with clear or printed film. The high-speed machine can wrap at a rate of 60 wraps per minute for a single lane or 120 wraps per minute for a dual-lane machine.

The shrink wrappers can be custom-designed to suit particular applications and can process unsupported, pad-supported or tray-supported product.

The machines offer a versatile, simple and compact solution and can be integrated into any existing line.

**Motion Technologies Pty Ltd**

[www.motiontech.com.au](http://www.motiontech.com.au)

## Packaging line upgrade means more haste, less waste

Devon Biscuits in the West Indies produces a range of coconut and chocolate bourbon cream sandwich biscuits.

The biscuits were previously wrapped on an intermittent motion, die fold end wrapping machine. They were wrapped in slugs of biscuits stacked on edge. The process was slow and involved the use of three machines, which resulted in high levels of scrap product and packaging film.

The company engaged the Bradman Lake Group (BLG) of Suffolk, UK, to streamline its biscuit packaging process.

BLG supplied a Flowtronic FT130 continuous motion biscuits-on-edge flow wrapping machine. This allowed for a new packaging design that revamped the product appearance, allowing for a pillow-style flowpack that uses transverse heat seals incorporating gusset tucked ends. The machine was designed to fit within the limited floor space of the plant and provided the company with higher wrapping speeds of up to 90 packs/min, high production efficiencies and a reduction in wastage.



The FT130 wrapper infeed was connected to a specially designed continuous motion, servo-driven, dual-lane, manually loaded crossfeed conveyor. This layout allowed up to four operators at each corner to load slugs of the biscuits from the biscuit production line.

The machine's features include: 'no product, no pack', which minimises wastage of empty wraps, and 'no gap, no seal' crimp, which minimises stoppages. Once product collation is in process, the product is not released until the final sealing, which minimises jamming on the machine.

*HBM Packaging Technologies*  
[www.hbm.com.au](http://www.hbm.com.au)



## Economic miracle.

The T 600 traysealer features flexibility and high-performance. With its quick and easy changeover, simple operation and MULTIVAC Hygienic Design™, simply opt for the better solution.

Call Multivac for a no commitment free packaging trial.



For further information please contact  
[sales@multivac.com.au](mailto:sales@multivac.com.au) or 03 8331 2800

[www.multivac.com.au](http://www.multivac.com.au)

 **MULTIVAC**  
BETTER PACKAGING

## Energy costs practically halved

Filling about 1.5 million bottles of mineral water a day, Mineralbrunnen Teinach GmbH was the first mineral water plant to be granted the Assured Sustainability – Investment in the Future seal of approval for sustainability in ecology, economy and social competence in 2013 by the private German Institute for Sustainability and Economy.

Knowing that overheads for materials and the price of energy are among the biggest cost drivers in production, Teinach charged the KHS Group with the modernisation of its PET bottle filling line. In the course of the process the systems supplier greatly improved the level of energy efficiency by optimising the heater boxes on the PET stretch blow moulder in particular.

At its plant in Bad Teinach, just under an hour's drive west of Stuttgart, the mineral water bottler achieves an output of about 150 million bottles of water and soft drink per annum, a third of which are made of PET. Preform heating consumes a lot of energy and is thus a relevant factor when it comes to the operating costs incurred during the manufacture of PET bottles.

One of Michael Schanz's main tasks, as head of engineering at Mineralbrunnen Teinach GmbH, is thus to constantly monitor the energy efficiency of the lines. He was therefore immediately enthusiastic about the new possible savings offered by KHS's InnoPET machines. KHS analysed the savings potential of the InnoPET Blomax Series III together with the engineers from the mineral water company.

The stretch blow moulder in Teinach has been in operation since 2007. "Over the last nine years the machine has given us wonderful service. KHS then showed us that with little effort we could improve further on our levels of energy efficiency," Schanz explained. After a maximum of two days the machine would again be ready for operation, yielding savings of up to 50%.

"After we'd discussed the details, it only took a few weeks before conversion started." This was possible as KHS was able to make use of a tested development from its energy-saving solutions product module.

### Optimised heater box geometry with ceramic reflectors

The upgrade primarily consisted of converting the heater box on the Blomax Series III Compact where the PET preforms are heated for the downstream stretch blow-moulding process.

Frank Goebel, head of service engineering at KHS, highlights the development of the past few years: "We have almost 600 Series II Blomaxes in operation worldwide. We aim to continue to support the operators of these durable machines even after many years of service."

At Teinach this specifically means saving over 40% in energy by converting the heater box which KHS achieved by adding new reflectors made of modern ceramics to the heater boxes and precisely adjusting the geometry. Thanks to their special design the physical properties of the ceramic elements have a very positive impact on the energy distribution, resulting in less energy being needed to heat the preforms. The reflectors and infrared emitter are also built so that the sensitive bottle thread area is not unnecessarily heated. The amount of cooling in this area can then be reduced, thus saving Teinach even more energy.



*The heater boxes are distinguished by new reflectors made of modern ceramics and a precisely adjusted geometry.*

This higher efficiency often also makes it possible to shorten the heating segment, explained Goebel. If fewer heating elements are required in the heater, the infrared emitter consumption also drops as a result.

KHS usually converts the heater boxes on all Series III Blomaxes in a maximum of two days. KHS process engineers make the fine and final adjustments during the start-up phase so that disruption to production is kept very short. Teinach's head of engineering is suitably satisfied with his company's decision to invest in this new feature.

"We're always trying to save energy to cut costs and protect the environment," stated Schanz. The bottler demonstrates this outside the production shop, too, through its long-term cooperation with the Central/North Black Forest Nature Park for the conservation of the unique local countryside, for example. Or with its system of energy management, certified according to ISO 50001. "We can simply read off the history of the heating costs for the modernised system on the electricity meter and document the significant savings," he claimed. Schanz also added that KHS converted the line quickly and competently without affecting system operation. Since the end of last year the revamped heater box has been running without any problems whatsoever.

Through the amount of energy saved, investing in a modernisation of the InnoPET Blomax Series III pays off for users after one to three years depending on the line's capacity utilisation and the price of electricity. KHS also offers the conversion for both versions of the Blomax Series II: the Modular or the Compact. "For many companies, energy-optimised PET stretch blow moulders are an excellent way of reducing production costs," said Goebel. He expects more orders for this sustainable KHS conversion product in 2016.

*KHS Pacific Pty Ltd  
www.khs.com*



© iStockphoto.com/gpointstudio

### Three-in-one packaging system for bottles and containers

The Kronos 3Bloc comprises a blow-moulder/unscrambler, filler and labeller, and is available in variants for PET and HDPE containers.

The PET version comprises three concatenated machines: blow-moulder, filler and labeller. The particular version of the Flexa labeller can vary, either featuring pressure-sensitive labelling with a Flexa Sencicol station or wraparound labelling with a roll-feed capability. This version is suitable both for cylindrical and square PET bottles and also for containers with special shapes. The maximum speed is 16,000 bottles/h.

In the case of HDPE containers, the blow-moulder is replaced by an unscrambler for erecting them as they are fed in. This variant is able to handle up to 25,000 bottles/h.

The system offers significantly reduced energy consumption compared to individual machines, as well as higher efficiency and enhanced operator-friendliness. The block configuration benefits the footprint of the machinery layout, as well as capital investment and operating costs. Intermediate conveyors are no longer needed, and the times required for changeovers and maintenance work are shortened.

**Krones (Thailand) Co Ltd**  
[www.krones.co.th](http://www.krones.co.th)

### 2D scanners

Zebra Technologies Corporation has launched the 3600 Series, a line of 12 rugged 2D scanners, offering durability and enhanced scan performance in demanding industrial environments.

There has been a steady shift in the industry to using 2D barcodes as they encode more data than 1D barcodes. 2D imagers can read the whole spectrum of barcodes, including 1D traditional printed, 2D traditional printed, GS1 DataBar used in point-of-sale (POS) scanning, high-density barcodes and all mobile and electronic barcodes.

2D imagers can also recognise poorly printed, torn, smudged, shrink-wrapped or damaged barcodes, permit omnidirectional scanning, which allows data capture from more angles, enhance near-range scanning and read multiple barcodes in a single trigger pull.

1D and 2D versions of the 3600 Series are available with corded and cordless options suitable for picking, packing, shipping, receiving, work-in-progress (WIP), inventory tracking, track-and-trace, cross-docking and POS applications.

Built to perform in extreme conditions, the scanner series offers high drop, tumble and sealing specifications and is IP67 rated, capable of enduring complete water immersion for up to 30 min.

**Zebra Technologies**  
[www.zebra.com](http://www.zebra.com)

## Vacuum Solutions Tailored to your Needs

- › Vacuum Pumps and Blowers
- › In-house and On-site Service
- › 24/7 Service of other Brands
- › Genuine Spare Parts

Dedication has earned us a reputation for superior service. Benefit from our expertise, give us a call.

[sales@busch.com.au](mailto:sales@busch.com.au) | [www.busch.com.au](http://www.busch.com.au)

Victoria: 30 Lakeside Drive | Broadmeadows, VIC 3047 | +61 3 9355 0600  
 New South Wales: Unit 1, 3 Cullen Place | Smithfield, NSW 2164 | +61 2 9609 6690  
 Queensland: 8-10 Commerce Circuit | Yatala, QLD 4207 | +61 7 3807 2766  
 Western Australia: Unit 14, 24 Baile Road | Canning Vale, WA 6155 | +61 8 9456 4233



## Leak detection system

The Witt-Gasetechnik Leak-Master Easy leak detection system makes it possible to detect even the smallest of leaks in products, components or packaging — whether for food items (with or without a protective atmosphere), pharmaceutical products, PET bottles or other items made of PET. The Easy can even be used for vacuum packaging.

The detection method is simple but effective: the test sample is placed in the water-filled chamber. Compressed air is used to evacuate the air space above the water level. At leakage points, the resulting vacuum causes air or filling gas to escape and bubble up to the top of the chamber in a way that is clearly visible.

The great advantage of this method is that the quality tester can quickly and easily determine whether the product is leaking and from where. This makes it possible to introduce changes to the manufacturing and packaging processes.

Witt also offers an electronic control module, which makes it possible to record, save and transmit all of the test results. This module is operated using a touchscreen.

In addition to the leak detection feature, it is also possible to carry out simple strength tests in the dry chamber. It is even possible to perform altitude simulation tests on products that need to be transported by air freight. It allows potential weak points in the packaging to be identified before they are transported.

The Leak-Master Easy is available in five variants with chamber volumes ranging from 20 to 215 L. The installation and commissioning process is simple and the test device is low-maintenance and inexpensive to run.

The intuitive controls mean that it does not require specially trained staff. The sturdy acrylic housing is hygienic and easy to clean. It can be emptied using a drainage tap in the base.

### Niche Gas Products

[www.nichegas.com.au](http://www.nichegas.com.au)



# pep<sup>up</sup>® by GualapackGroup

An innovative, all flexible, one hand use and self closing pouch from the Gualapack Group Italy.



The Small Flat Bottle.



Central opening.

Size range:  
40 - 200mL

The Flat Bottle.



Central opening.  
Side gussets.

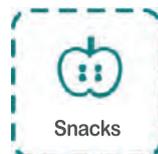
Size range:  
50 - 500mL

The Ultimate Stand-Up Pouch.



Side opening.  
Bottom gussets.

Size range:  
100 - 500mL



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

**AUSPOUCH**  
THE AUSTRALIAN POUCH COMPANY

To learn more about pep up pouches, please don't hesitate to contact us.

+ 612 8852 2660 [www.auspouch.com.au](http://www.auspouch.com.au)

## Automatic tray sealer

The Multivac T 300 Traysealer is a fully automatic solution for packing fruit and all types of raw or processed vegetables in trays. The compact model is suitable for producing small and medium-sized batches.

Electric drive systems for the tray transport, lifting unit and film trim winder ensure that the tray sealer has an energy-efficient method of operation. Rollers for mobility and a wide range of possible applications make this machine a flexible packaging solution.

**Multivac Australia Pty Ltd**  
[www.multivac.com.au](http://www.multivac.com.au)

## Multilane metal detection

The single Dynamic Inspection multilane search head comprises separate apertures with individual products being inspected by each one. The main advantage of this approach is that there is only minimal widening of the conveyor belt to accommodate a single search head as opposed to installing individual metal detectors or utilising a wide aperture to inspect all items at once. This reduces both the cost and the footprint.

Each aperture has its own reject station, meaning individual products are rejected rather than multiple products. All apertures are controlled from the one control panel, which streamlines operator access. Multi-aperture units are available in two, three, four or more apertures.

The detector features FM Software which enhances detection capability.

**OFI**  
[www.ofiinspection.com.au](http://www.ofiinspection.com.au)



## Colour label printers

The Primera LX500 and LX500c colour label printers produce professional-quality labels for short-run, specialty products. Utilising high-resolution inkjet technology to print full-colour product labels on demand, they are suitable for industries such as

gourmet foods, wine and water bottles, personal care and natural products.

The LX500 can print labels up to 4800 dpi and 102 mm wide. It is small and compact in size, weighing only 3.5 kg. The LX500c includes a built-in guillotine label cutter inside the printer so the user can quickly and easily dispense individual labels or cut at the end of or between label jobs.

From initial set-up to full operation, both printers are easy to use. Each product ships with BarTender UltraLite Edition software, sample roll of high-gloss labels, an ink cartridge and a USB cable. Labels can include full-colour photos, illustrations, graphics, text and barcodes. They can be printed when and where they are needed.

**Label Power Pty Ltd**  
[www.labelpower.com.au](http://www.labelpower.com.au)

### QUALITY CONTROL EXCELLENCE




Silicon Valley USA

- Technology Leaders
- X-Ray & Vision
- Check Weigh Capability

- Remote Support 24/7
- Local Service Support
- 2 year warranty

Contact us +61 2 8814 3100  
[www.hbm.com.au](http://www.hbm.com.au)



# Machine vision for the food and beverage industries

*Glenn Johnson*

**Vision technologies give machines the gift of sight, replacing or complementing manual inspection tasks by using digital cameras and image processing. Vision technologies can be used across a range of applications in the food and beverage industries to automate inspection processes and improve product quality.**

**M**achine vision can be defined as the automatic extraction of information from digital images. Such systems involve a number of technologies working together: a digital camera and lens, an illumination system synchronised with the camera and an image processing system to analyse the image from the camera. Systems can be built from separate components, but today there are many integrated vision sensor systems available, in which all the components are located in a single unit.

Integrated vision systems or sensors have obvious advantages in terms of reduced cost and complexity of implementation and come designed for common machine vision applications. Not all implementations are alike, however, and some types of visual inspection may present challenges that an integrated system cannot solve — for example, difficult-to-read surfaces that require customised lighting arrangements, or processing requirements that are more complex and require a separate image processing computer.



© iStockphoto.com/alexeys

- Providing traceability data to help minimise the impact of recalls of products should they occur.
- Providing improved worker safety around automated systems while minimising impact on production throughput.

### The four main functions of vision systems

The four main uses for vision systems can be described as measurement, counting, locating and decoding.

- 1. Measurement:** Taking automated measurement of products or packaging to ensure they are within specification. A common example is in beverage bottling, where a vision system may be used to measure the level of liquid in the bottle to ensure it is correctly filled, and at the same time measure the position of the bottle cap to ensure it is applied and sealed correctly.
- 2. Counting:** Detecting the number of items in the field of view of the camera. A common application is in packaging, to determine that the correct number of items is present.
- 3. Locating:** Using pattern recognition to detect the presence of the correct item or its orientation. One advantage of using vision systems in this way is that they may be used to correctly orient a product or package before the next step in the process, or to allow following systems to respond correctly, regardless of product orientation.
- 4. Decoding:** Reading barcodes, stacked codes or 2D codes, as well as optical character recognition (OCR). Decoding capabilities are used to track products, sort them, validate data and labels, and to keep historical records.

Of course there are other existing technologies that can perform some of these functions, such as presence and distance sensors, as well as barcode readers. The main benefit of vision systems in these applications is that they are simpler to implement and can be used to perform multiple functions at a single detection point. For example, setting up a system of sensors to detect product orientation requires a complex configuration of multiple sensors and external processing, where a 3D vision sensor can detect the size and position of an object with a single operation in a single device. Similarly, a vision sensor can be used to check the fill level and the cap of a bottle, and at the same time read the label to ensure it is correct, and to provide traceability data — measuring multiple parameters and decoding at the same time.

### Labelling and traceability

Food safety laws across the world, as well as high consumer expectations regarding food safety, now mean that food and beverage producers must invest in the best technology to ensure compliance and minimise the likelihood of a product recall — and the ensuing public image and brand damage problems. In the event of the need for a recall, effective traceability data can minimise the impact of the recall.

Companies that process, package, transport or hold food and beverage products must contain potential integrity prob-

Whatever the solution chosen, machine vision systems can play a broad variety of roles in the food and beverage industry, providing numerous advantages in relation to efficiency, quality, safety and traceability.

Advantages for food and beverage producers include:

- Helping to automate quality control processes, collecting quality data at various points through the production and packaging process, and automating the rejection of defective or non-compliant product.
- Improving and optimising throughput, by providing the data that allows faster response to quality issues, before product is shipped, and allowing faster correction of issues.
- Ensuring product is packaged correctly and safely.
- Improving the speed, accuracy and efficiency of packaging operations.
- Cost savings in reducing waste and manual effort.
- Ensuring correct labelling throughout product packaging and end-of-line shipment packaging or palletising.

lems before the product leaves the plant while at the same time providing detailed product history to their supply chain. Improved food safety and quality management through traceability will ultimately reduce the risks and costs associated with product contamination and poor product integrity.

Incorporating vision inspection systems ensures that information contained on the label matches the package contents, is legible and also checks for integrity.

Through their decoding capability, machine vision systems offer the following benefits in relation to traceability:

- Ensuring that product labelling matches the content of the package.
- Ensuring that product labels are legible and contain the correct required information, including ingredients, use-by or best-before dates and food allergy warnings.
- Ensuring barcode or 2D codes are correct on individual product items as well as ensuring the correct end-of-line labelling data that matches the content of the package.
- Recording data including batch and production date information for historical traceability records.

The chief advantage over barcode readers is that the entire label, including plain text data, can be read, compared and recorded.

### Product packaging

As packaging line speeds increase and automation replaces manual inspection, maintaining product and packaging integrity and quality is critical. Food and beverage

producers need assurance their food containers are free of contaminants before filling and properly sealed afterwards. For these applications, industrial machine vision plays an important role, mainly using their measuring, counting and locating capabilities:

- Measuring and locating: Ensuring packages are properly sealed, whether that be the caps on bottles or the plastic sealing on a food tray, for example.
- Locating and counting: Ensuring that all items are packed into a package (such as bottles in a six-pack).
- Locating, decoding and measuring: Ensuring that the correct label has been applied to the product, in the correct location and orientation.

### End-of-line packaging

After individual packages have been made they are packaged in groups in larger containers or on pallets for shipping. End-of-line packaging systems include case erectors, case packers, case sealers, wrappers, palletisers and pallet wrappers. Additional case or pallet labelling is performed and industrial robots are often employed for filling boxes and building pallets.

Machine vision systems in this area of the plant are called on to effectively perform the same types of tasks as for the individual products — checking quantities, package sealing and labelling.

The increasing use of industrial robots to perform package filling and palletising presents another problem that machine vision technologies can solve. A vision sensor on the robot arm effectively allows the robot to ‘see’ what it is doing, in three dimensions, without complex arrangements of sensors. This allows the robot to pick up and manipulate objects presented in any orientation, place them in a box or on a pallet, and to know when the box or pallet is full — with only a single sensor.

### Vision and sensor integration

There will be many instances where data from a vision sensor may need to be combined with outputs from other sensors (vision or otherwise) as part of the automation of the machine or system. Today, integration systems and software are available that simplify the integration of disparate sensors, making the customisation of an automation solution simpler and more cost-effective.



Multicamera and multi-sensor processors open up new possibilities for application solutions. Data from multiple sensors and cameras can be merged into a point cloud, evaluated, archived and transmitted, while sensors can be integrated via IO-Link for distance and height measuring purposes.

Such processor devices, along with supporting software libraries, make it possible to find solutions for sophisticated image processing tasks, including:

- Multisensor and multicamera based inspection, measurement and identification of objects and components in all areas of factory and logistic automation.
- Data recording and archiving, enabling quality control, traceability, process analysis and predictive maintenance for vertical integration in Industry 4.0.

### Conclusion

Modern machine vision systems come in various forms to suit different applications, whether they be integrated vision sensors or made up of separate component parts. They are capable of performing multiple simultaneous detection tasks that previously would have required multiple technologies, and some are capable of measuring and recording in three dimensions.

The benefits of machine vision technologies for food and beverage companies are wide-ranging. Despite their higher individual unit cost, they offer opportunities to reduce operational costs through simplification of production sensing processes, reducing the number of sensing technologies required, and through their ability to perform multiple functions simultaneously and more effectively — improving efficiency, compliance safety and quality. 

SICK Pty Ltd  
www.sick.com.au

## Result Group delivers a sticky solution for juice bottle neck tags

To support the launch of a new innovation for its flagship Daily Juice brand, The Daily Drinks Company required an engaging pack solution to convey a consumer promotional message.

Traditionally, neck tags hang loosely over the neck of the juice bottle and require expensive and specific application equipment to apply. Furthermore, traditional neck tags do not offer much flexibility in terms of content space — or reassurance to the marketing team that the tags stay on the bottles all the way to the point of purchase.

Labelmakers provided The Daily Drinks Company with a simplified adhesive neck tag to create a point of difference in an overcrowded shelf space.

The solution ticked all the project requirements by using standard pressure-sensitive materials, making it familiar for the production site to process with limited change to existing processes.

To develop the solution, Labelmakers partnered with Result Group. Both parties contributed in their areas of expertise and the result is an adhesive tag that is automatically attached to the bottle lid while on the production line.



The equipment used is the HERMA 400. This compact label applicator has versatility due to its modular construction system. The wide range of modules available means the HERMA H400 can be integrated into any production line without impacting on production times or efficiencies.

Result Packaging Pty Ltd  
[www.resultgroup.com.au](http://www.resultgroup.com.au)

# TRONICS®

More companies throughout Australia choose TRONICS for their labelling and coding needs.

The best solutions for your needs



Labellers  
Laser Coders  
Thermal Transfer  
RFID  
Inkjet Printing

TRONICS®  
Ph 0800 007 729  
[www.tronics.co.nz](http://www.tronics.co.nz)

## Busch vacuum system cuts energy consumption by 70%

The Feinkost Dittmann delicatessen company dates back to 1901, when Carl Dittmann opened a delicatessen in Wiesbaden, Germany. Today, the family-run business is the German market leader for olives, antipasti, capers, garlic and anchovy specialities.

Products are manufactured as preserves in glass jars or as fresh products packed in plastic trays. During the packing process in the 'fresh' department, air is sucked out of the packaging trays before a CO<sub>2</sub>-N<sub>2</sub> protective gas mixture is added to the package. Synthetic material foils are then used to give the packaging a gas tight seal before the packaging is closed with an additional plastic cover. This type of packaging guarantees that the oxygen content is under 1%, significantly increasing shelf life.

In total, four tray sealers are used for packing during a two-shift operation. The vacuum required for this is generated by six oil-lubricated rotary vane vacuum pumps with 5.5 kW of motor power each. They were originally installed directly on the packaging machines; however, for hygienic reasons and to reduce the thermal load in the production rooms, these vacuum pumps were later installed in a separate room above the production room and connected to the packaging machines using a pipe network.

Andreas Lutz, the technical project manager in the production plant, was dissatisfied with this solution because the vacuum pumps still required high levels of maintenance.

He charged the vacuum specialists from Busch with the task of offering a more reliable and efficient solution, using the existing pipe network. In addition, the vacuum supply was to

be designed in such a way that connection of further packaging machines would be possible if production capacity were to grow.

Busch recommended a central vacuum system with four Mink claw vacuum pumps. These have the basic advantage that they do not require an operating fluid such as oil in the compression chamber, eliminating much maintenance work such as oil checks, oil changes, oil filter changes and the costs for procuring and disposing of oil and filters.

Mink claw vacuum pumps also use non-contact operation, meaning there are no parts in the compression chamber that come into mechanical contact and thus cause wear. The non-contact operation also enables a high degree of efficiency and therefore requires less motor power than conventional vacuum pumps.

Three vacuum containers with a volume of 3000 L each are upstream from the Mink claw vacuum pumps. This ensures that sufficient vacuum levels are immediately available at the machines when they are needed.

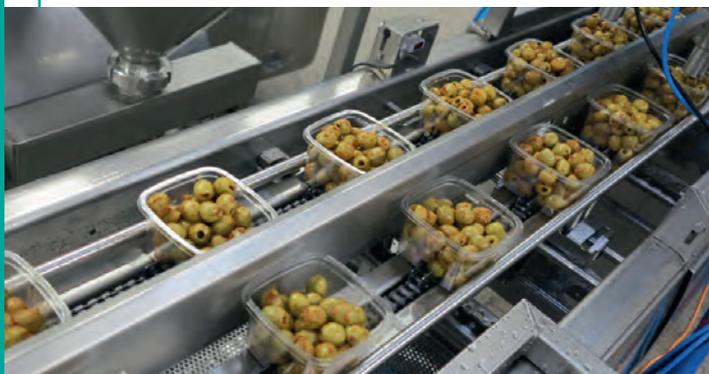
The Mink vacuum pumps in the new central system are controlled so that only those currently needed for the actual vacuum requirements are running.

Two of the vacuum pumps with standard motors are responsible for the so-called base load. The other two vacuum pumps are frequency controlled and ensure fine adjustment of the vacuum requirements by adjusting their speed. With this intelligent solution, the pumping speed of the central vacuum system adjusts itself to the current requirements.

During normal operation, all four vacuum pumps never need to operate at full load, so Feinkost Dittmann's central vacuum system has sufficient power reserves to connect further packaging machines. There is a plan to additionally connect a vacuum filler for glass preserves, which would eliminate the need for the current decentralised liquid ring vacuum pump installation with 7.5 kW drive, creating further energy savings.

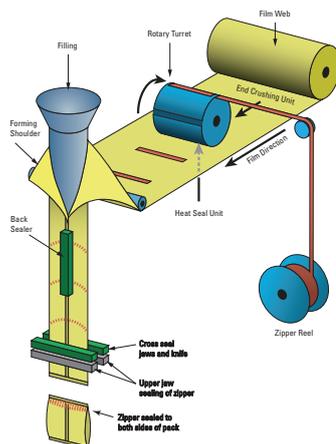
After more than two years of operation, project manager Andreas Lutz said that energy requirements have been reduced by more than 70%, alongside a drastic reduction of maintenance efforts, increased reliability and no failures or breakdowns.

Busch Australia Pty Ltd  
www.busch.com.au



*Want to add zip  
to the package  
on your FFS or  
Flow Wrapper?*

*Zip-Pak is doing this with  
cost-effective retrofits.*



**ZIP-PAK**

We're Uniquely Flexible.

For more information  
call AUS: 03 8795 8299  
or NZ: 09 838 5747

Email: salesausnz@zippak.com  
www.zippak.com



## Modular bottle labelling system

The Sacmi OPERA 60T bottle labeller is equipped with three labelling modules for cold glue application and the same number of modules for self-adhesive labelling. These allow output rates of 62,000 and 60,000 applications/h, respectively. The machine incorporates quality control systems and a bottle positioning system equipped with six colour video image acquisition cameras.

The modular labeller is easy to manage, hard-wearing and compact, while its flexible modularity ensures efficient operation under various manufacturing conditions. It can operate efficiently, at high speed, with just a single passage through the machine and across multiple labelling technologies and systems. The automatic splicing system means the reel can be changed without interrupting production, ensuring consistent performance.

**HBM Packaging Technologies**  
[www.hbm.com.au](http://www.hbm.com.au)

## Metal detector for use with oxygen absorption sachets

A&D Japan has released a metal detector which can check packaged goods that contain oxygen absorption (OA) sachets.

OA sachets contain metallic powder that reacts with and reduces oxygen contained within the packaging. Due to their strong metallic signature, the presence of OA sachets has meant that traditional metal detectors could not be used for final product inspection.

The company's digital signal processing (DSP) technology has led to an innovation whereby a micro analysis tool built into the software of its regular metal detectors enables the sensor to differentiate between the distinct, strong signal created by the ferrous OA sachet and those created by much smaller metallic contaminants that could be present in the same package.

The metal detector can check for metallic contamination in the final product, while also checking for the presence of the OA sachet in the same pack, at the same time.

**A&D Australasia Pty Ltd**  
[www.andaustralasia.com.au](http://www.andaustralasia.com.au)

## THE ONLY AUSTRALIAN MANUFACTURER OF POLYOLEFIN & PVC SHRINK FILMS

*We can custom make any machine specific to your needs*



Automatic L-bar sealers (Pratika 56)



Vertical Form Fill Sealing Machines



Vacuum Machines



Flow Wrapping Machines



PMW-420E

**Australian owned company**  
[www.minipack.com.au](http://www.minipack.com.au)

*Our business motto is "The bitterness of poor quality remains long after the sweetness of low price is forgotten"*

**Minipack International Pty. Ltd.**

39-41 BARRY RD, CAMPBELLFIELD  
 MELBOURNE, VICTORIA 3061 AUSTRALIA  
 Phone: (03) 9357 8400 | Fax: (03) 9357 8225

Sydney:  
 Unit 5/1357 The Horsley Drive  
 Wetherill Park 2164 NSW



# Fine Food Australia

## promises flavour, fun and firsts

Fine Food Australia is heading back to Melbourne in September. And this is one not to miss!

**F**eaturing the biggest footprint in the show's history, the event will host over 1000 exhibitors from more than 45 countries and welcome thousands of visitors through its doors over four days.

Whether you're a regular attendee (like us!) or a newbie to a Fine Food event, you'll be treated to a host of experiences, taste some outstanding food, see the latest innovations in products and services, and expand your knowledge, network and business. And it's free to attend as long as you preregister by 9 September.

### New in 2016

Tea and coffee lovers can take a stroll down **Roasters Lane**. A new feature in 2016, Roasters Lane will cover all aspects of leaf and bean: from tea masterclasses to coffee tastings, and expert seminars discussing trends and industry predictions.

Don't miss the **World Tea Championships**, where 12 contestants will engage in cup-to-saucer combat, judged on their brewing expertise, service professionalism, tea knowledge and quality of tea served.

The competitive spirit will be alive and well in Fine Food Australia's kitchens, and this year there will be new twists on two of the most popular contests. The much loved **Great Aussie Pie Comp** will pay homage to the host city's obsession with AFL with the addition of the footy pie to their categories. Calls for oval-/oblong-shaped pies that depict team colours in edible form are now open.

And for the first time, the Australian arm of the **World Pizza Championships** will invite international competitors to travel

for a slice of the action. Pizzaiolo from France, Mauritius, New Zealand and Korea have already confirmed their attendance.

### The latest innovations

For the flavour junkies, and those who like to keep ahead of the pack, the **Best New Products Awards** offer the chance to find out what's new and hot.

Byron Bay Cookie Company is taking newness one step further, with a cookie that will **ONLY** be available at the event! Launching specifically for and at Fine Food Australia 2016, the 'jam doughkie' concept merges two favourite treats — jam donuts and cookies!

Shhh... Good Grub Hub will be showcasing its unique Japanese ingredients, including one with dubious origins. Extracted from a plant that is 'illegal' in Australia in its raw form, and of historical importance in its homeland, kuzu (starch) is in high demand for its thickening properties that also add a shiny gloss to soups and gravy with no starchy aftertaste.

### Bulla Pastry Stage

Bulla Family Dairy is the Platinum Sponsor of Fine Food Australia 2016, and the **Bulla Pastry Stage** will feature a range of chefs who will present a range of sessions, including the key trend of catering to the vegan market.

Liz Bawden from Bakes Eleven will demonstrate naked cakes, catering for gluten-free and vegan consumers, and harnessing the growing matcha trend.

Other presenters will include Deniz Karaca (Epicure and Cuvee Chocolate); Darren Purchase (owner Burch & Purchase



© stock.adobe.com/au/fikovic

Sweet Studio); Christy Tania, head pastry chef of the Langham Hotel; Brett Noy.

The stage will be located in **Bakery World**, with equipment provided by Vanrooy Machinery. All sessions are free to attend and no bookings are required.

### Australian Culinary Challenge

A favourite of the show floor returns in 2016, when the **Australian Culinary Challenge** invites chefs, trainees and apprentices to pit their skills against each other and against the clock, competing for a share of up to \$20,000 in cash and prizes.

Judged by a panel of international, interstate and local judges, this year the competition program will include the ACF Most Outstanding Chef 2016, a Yum Cha Challenge, extensive centrepiece and static displays, Nestlé Golden Chefs Hat, AusTAFE state finals and the Pastry Cup.

If you're a fan of high-pressure cooking competitions, don't miss the **Fonterra Battle of the Pacific**, which will see 12 regional and state teams cook off against the clock to prepare a two-course meal for 36 covers. Each kitchen team will consist of one team manager, two qualified chefs and one junior chef (apprentice/trainee who has been in the industry for less than 3 years).

### Seminars/expert sessions

Learning and development opportunities abound at the show. The **Ask the Experts Advisory Centre** will provide visitors with the opportunity to meet one on one with experts across different areas of the foodservice industry for a free consultation.

The MYOB team will be available throughout the show, sharing top tips and tricks, and advising on how to stay on top of cash flow, managing of payroll and controlling stock more effectively, to keep your business running smoothly.

Foodservice Consultant Society International (FCSI) will be running consultations on fit-out and design so that you can maximise the space of your establishment.

### Women in Foodservice Charity Event

If you're looking for inspiration in your food career, the successful **Women in Foodservice Charity Event** will return to Fine Food Australia in 2016, providing the opportunity to be inspired and influenced by key successful women within the industry while connecting and networking with your peers at an intimate brunch. This year's event will be held on Wednesday, 14 September 2016, featuring a panel facilitated by *The Age* food critic Gemima Cody, who will lead renowned industry innovators including Alla Wolf-Tasker, Nahji Chu and Phillippa Grogan in a discussion covering multiple topics. All profits from the event are donated to charities Daylesford Primary School Kitchen Garden Program and Dress for Success Sydney.

### New products

Many exhibitors will be launching new products at Fine Food Australia. Here are just a few:

- Award-winning UK brand Smootheelicious creates portioned sachets of fruit and vegetable with a two-year shelf life. Abolishing the wastage associated with using fresh fruit, the seller has 100% portion and profit control while the customer enjoys the same recipe every time.
- Silikal will showcase their heavy-duty, seamless, slip-resistant and easy-to-clean flooring system. Suitable for cold rooms (up to -25°), the product can be fully cured mechanically and chemically within two hours after application, minimising downtime for customers as the flooring system can be installed overnight.
- Ridiculously Delicious Peanut Butter Bars will launch at the event. They're promoting themselves as a 'Snickers bar for adults' with half the sugar.
- Top Shelf Concepts are launching their waxed food paper on a roll in response to customer demand.
- CocoEarth offers 'Liquid Coconut Oil', which stays liquid in cooler temperatures. Extracted from the healthiest part of coconut oil, using a multi-distillation process with no chemicals, the product has 30% more MCT than virgin coconut oil.
- Raw Materials will offer tastings from their new range of ready meals. They cater to retailers and also have a 1 kg foodservice size.

### Fine Food Australia 2016

When: 12–15 September

Opening hours: Mon: 10 am–8 pm; Tue & Wed: 10 am–5 pm; Thu: 10 am–4 pm

Where: Melbourne Convention & Exhibition Centre

Registration: Register free online at [www.finefoodaustralia.com.au](http://www.finefoodaustralia.com.au) before Friday, 9 September.

Fine Food Australia is strictly a trade-only event. Children are not permitted.





## Belgian researchers monitor chocolate quality with ultrasound

Belgian chocolate is famous all over the world. But producing a delicious bar of chocolate that has all the desired qualities, and maintains them throughout its entire shelf life, is not easy. Now Belgian researchers have developed a new way to check the quality of their country's most famous product.

The final quality of chocolate largely depends on the crystals that form during the hardening of the chocolate. Chocolate manufacturers currently check the quality of their chocolate 'offline'. A sample is taken from the production line to be analysed in a lab, which is a time-consuming process that makes it impossible to intervene quickly when something is wrong. As a result, a large amount of chocolate is destroyed or reprocessed — a costly affair.

Researchers have now developed a quicker way to check whether the cocoa butter is crystallising correctly during the hardening process. The technique can be used 'online' to check the chocolate while it's still on the production line, potentially saving the industry both time and money.

"Cocoa butter crystallises as the liquid chocolate hardens. Five types of crystals can be formed during this process, but only one of these has the qualities we want. The number, size, shape, and the way in which the crystals stick together, play an important role as well," explained Professor Imogen Foubert from the KU Leuven Department of Microbial and Molecular Systems.

"We've discovered that we can detect differences in the crystallisation of cocoa butter with ultrasonic waves," added Professor Koen Van Den Abeele from the KU Leuven Department of Physics and Astronomy.

The new technique involves sending transversal ultrasonic waves through the cocoa butter. The researchers then measure the reflection of these waves for information about the structure of the butter. The technique is similar to the ultrasound echography used to monitor the health and growth of foetuses in the womb.

"When the cocoa butter is liquid, the ultrasonic wave is reflected in its entirety. As soon as the butter crystallises, part of the sound wave penetrates the cocoa butter, so the amount of reflection we measure changes. This enables us to see how the different crystals stick together, which is important for the ultimate properties of the chocolate," said Professor Van Den Abeele.

The researchers have designed a lab prototype, which now needs to be turned into a prototype for use in real chocolate production lines. The current results were obtained with cocoa butter and need to be confirmed for actual chocolate.

# Testing



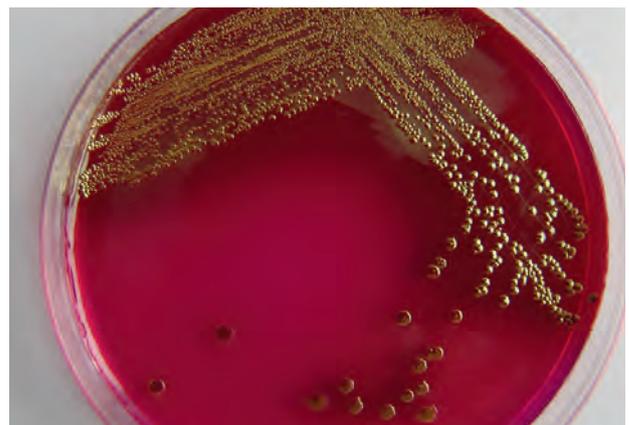
## New ISO standard validates microorganism testing methods

The revision of ISO 16140:2003 for the validation of alternative (proprietary) microbiological methods has created a multipart standard providing a specific protocol and guidelines for the validation of methods both proprietary (commercial) or not.

ISO 16140-1:2016, 'Microbiology of the food chain — Method validation — Part 1: Vocabulary', describes the terminology used in microbial testing, while ISO 16140-2:2016, 'Microbiology of the food chain — Method validation — Part 2: Protocol for the validation of alternative (proprietary) methods against a reference method', is dedicated to the validation of proprietary microbiological methods. They are designed to help food and feed testing laboratories, test kit manufacturers, competent authorities and food and feed business operators to implement microbiological methods. ISO 16140-2 includes two phases, the method comparison study and the interlaboratory study, with separate protocols for the validation of qualitative and quantitative microbiological methods.

Over a hundred alternative methods have been validated based on the previous version of ISO 16140, and the standard was updated to provide new insights on the validation of microbiological methods and experience gained from conducting validation studies across the world. The other four new parts of ISO 16140 are still under development with the following topics:

- Protocol for the verification of reference and validated alternative methods implemented in a single laboratory (Part 3 of ISO 16140)
- Protocol for single-laboratory (in-house) method validation (Part 4 of ISO 16140)
- Protocol for factorial interlaboratory validation for non-proprietary methods (Part 5 of ISO 16140)
- Protocol for the validation of alternative (proprietary) methods for microbiological confirmation and typing (Part 6 of ISO 16140)



# Keeping control of ice-cream colour

Colour and appearance play a huge role in the way consumers select their ice-cream in supermarkets or convenience stores. Before they even taste the product, consumers first judge the colour and appearance of the frozen treats in display cases, then buy the brands that look the most appealing.

The sixth-largest ice-cream plant in the world, the Algida ice-cream factory in Çorlu, north-western Turkey, churns out nearly 1 billion units of ice-cream annually for both home and by food service applications. Algida wanted to tighten its process control so that its batches of vanilla, chocolate, strawberry and other flavoured ice-creams would have consistent, uniform colour. Inconsistent colour was particularly evident when the same flavour from two production lots sat side by side in stores.

Getting the colour of ice-cream right is a major challenge in itself, due to the ingredients and the processes used in making the dessert. Ice-cream is made up largely of casein micelles, fat globules, air cells and ice crystals, all of which reflect light in different intensities depending on the composition of the recipe. Smaller particles and larger volumes of air bubbles will cause the uncoloured ice-cream to take on a lighter apparent colour. Even various types of cocoa used in making chocolate flavours have different shades of brown and red.

The company chose X-Rite to be its partner in the colour management of its processes. X-Rite with its wholly owned subsidiary Pantone is a worldwide leader in colour standards and the design and manufacture of colour management solutions for food processing, packaging, printing, cosmetics manufacturing and other industrial applications.

X-Rite experts first determined the colour tolerances that Algida needed to meet product specifications, then put together a package of instrumentation and software to satisfy those conditions. As part of the package, X-Rite customised the proper holders for test samples being measured by a benchtop spectrophotometer and installed its VS450 non-contact spectrophotometer in the lab.

The VS450 can measure colours accurately without contacting the test surfaces — a critical requirement whenever you are dealing with food products.

The Çorlu plant is a marvel of high-speed manufacturing, which makes it critical for lab personnel to make quick and

accurate colour measurements of samples from batches before they flow down the production line.

By measuring the colour of samples frequently, quality control personnel can catch and correct small mistakes before they become big problems.

With the ability to measure wet or dry samples, the VS450 spectro and software can link objective numerical data — for example, the degree of hue, chroma and saturation of a particular ice-cream sample — with shopfloor variables during the manufacturing process, such as ingredients in a particular batch or mixing time. The instrument can be quickly positioned horizontally or vertically to measure odd-shaped or bulky samples at a distance of about 38 mm, and measurements can be uploaded directly to a computer for analysis.

The VS450 also more closely represents the way the human eye perceives colour and ultimately how the consumer will view the finished product because it doesn't require a transparent barrier between the sample and instrument, which immediately imparts errors such as depth-of-field issues and ambient light piped in from the surroundings.

Colour quality is paramount to Algida, one of several ice-cream brands owned by the world's largest manufacturer of ice-cream, Unilever. Long a favourite in Italy and other European countries, Algida has become the most popular brand of ice-cream in Turkey since its introduction about 20 years ago. Experts say the consumption of ice-cream in Turkey and Middle Eastern countries is growing strongly.

With the help of X-Rite technology, Algida will maintain its reputation for colour quality as it increases its capacity to provide delicious ice-cream treats to Eastern Europe, the Middle East and Africa. 

ColourSpec Australia  
colourspec.com.au

Your trusted provider at every stage of the food manufacturing process

# QUALITY CONTROL

The right balance of ingredients



- pH meters
- titrators
- moisture analysers

- balances
- sensors



1.

# ON LINE PROCESS ANALYTICS

2.

Precise instruments for automated process control

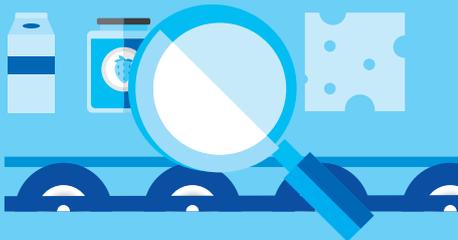


- pH
- conductivity
- turbidity/colour
- TOC/microbial content
- gas analysers

# REGULATORY COMPLIANCE

HACCP, HARCP, BRC, EHEDG compliance, contamination detection, and recall prevention

- x-ray inspection
- metal detectors
- checkweighers
- vision inspection



4.

# PLANT EFFICIENCY

Increased operator throughput and accuracy



- formulation/recipe solutions
- tank and hopper weigh modules
- colourweigh scales

3.

# ACCURATE ORDER FULFILLMENT

5.

Traceable delivery to and from distribution centres



- track and trace ID points
- bench scales
- floor and pallet scales

Ask us how to improve your manufacturing processes and quality control



[www.mt.com/au-food](http://www.mt.com/au-food)

Australia: 1300 659 761  
New Zealand: 0800 722 648

## WARNING



## MUSHED IN SECONDS

Beware: The GM300 Grindomix will homogenise potatoes in a matter of seconds!

Warning also applies to cheese, deep-frozen products, feed pellets, fish, food, fruit, ham, meat, pharmaceutical materials, plant materials, sausages, seeds, spices, vegetables, ...



**Retsch**

**GM 300 Grindomix**  
Professional grinder  
for professional labs.

available at

**MEP**  
instruments  
The right chemistry.

**MEP Instruments Pty Ltd**  
Australia Tel 1300 720 485  
New Zealand Tel 09 477 0620  
[www.mep.net.au](http://www.mep.net.au)

## Humidity probe

The HygroSmart HS3 humidity probe from Michell Instruments has been designed to withstand the demanding conditions found in industrial processes. The product uses polymer tile to give long-term reliable measurements. It also has an accuracy of 0.8%RH and, according to the company, is among the most accurate and reliable RH probes on the market.



The probe has a solid, corrosion-resistant body with an interchangeable sensor. When recalibration is due, the old sensor is exchanged for a freshly calibrated one. Replacing just the sensor, rather than the whole probe, is simple.

In most industrial applications, probes need to withstand vibration, exposure to water, occasional heavy shocks and high levels of electrical interference. The product is designed to cope with all these environmental factors. As well as the solid body, it also has a 10 bar pressure rating, RFI/EMC electrical noise approvals and IP67 ingress protection rating.

As well as its ability to withstand harsh process conditions, the probe also gives control to the user, as it is 100% configurable. This gives users the ability to alter their RH and temperature measurements to keep step with changes or developments in their process.

**Michell Instruments Australia**

[www.michell.com/au](http://www.michell.com/au)

## Colour evaluation technology

Rich, vibrant colour is an indicator of quality, freshness and taste. Processed foods, which are dependent on image and brand loyalty, must therefore maintain a consistent look and appearance, but getting the colour right consistently is a demanding task.

X-Rite's product portfolio offers solutions that evaluate colour from incoming shipment to processing. X-Rite colour communication tools contribute to cost savings through reduced product waste, minimal production downtime and elimination of off-colour product, offering seamless management of the colour process through a global supply chain or multiple locations.

**ColourSpec Australia**

[colourspec.com.au](http://colourspec.com.au)

## Moisture measurement guide

The moisture content of foods affects processability and price and helps to guarantee freshness, potency and safety. But moisture analysis accuracy requires methods that suit the product and proof that equipment heats reliably and weighs very small changes in moisture content with precision.

Mettler Toledo has released the free, downloadable Guide to Moisture Analysis.

The guide addresses everything from preparing samples to ensuring reliable and consistent heating to help tackle the most persistent moisture analysis challenges. Using clear, easy-to-follow examples, users can learn tips and tricks that can help more accurately assess moisture content as well as provide assurance of equipment performance to satisfy regulations and auditors.

**Mettler-Toledo Ltd**

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



## Simple colour-change protein swab

FLASH is a total protein visual swab that rapidly detects protein residues left on food contact surfaces after cleaning. Protein can be difficult to remove and is a good indicator that food residues have been left behind due to inadequate cleaning.

Improper cleaning can lead to biological contamination and also result in cross-contamination to allergen-free products. Most allergens are proteins, so a total protein detection test can help minimise allergen risks.

The self-contained sampling device contains a premoistened tip and all necessary reagents. One swab provides two sensitivity levels, allowing flexibility depending on the criteria for limits of detection of protein residues. Simply swab, activate and read the colour change.

The system complements other cleaning verification methods such as ATP or direct testing for allergens.

**Australasian Medical & Scientific Ltd**

[www.amsl.com.au](http://www.amsl.com.au)



## Food allergen screening system

Undeclared food allergens are one of the primary sources for food recalls. The SCIEX LC-MS/MS QTRAP 4500 Food Allergen Screening Assay is designed to improve throughput, reliability and confidence in food allergen screening results in baked and raw food products.

The system can detect 12 key allergens in different types of matrices at once, at levels as low as 10 ppm or as high as 500 ppm. False positive and false negative results are reduced through peptide mass detection, reducing false results due to cross reactivity or matrix effects.

**SCIEX Australia Pty Ltd**

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



## Cost-effective, high sensitive contaminant detection

### Thermo Scientific™ NextGuard™ X-ray Inspection System

- Detects a wide variety of foreign objects
- Simple to install, operate and service
- Flexible software to verify product integrity
- Custom solution available



### TECTATM B16 Automated Microbiological Platform

- Fast, reliable and accurate water quality testing
- Single cell sensitivity for both E. coli and total coliform
- Immediate alert upon contamination detected



For further information please call 1300 735 295

Find out more at [thermofisher.com/food-beverage](http://thermofisher.com/food-beverage)

© 2016 Thermo Fisher Scientific Inc. All rights reserved.  
All trademarks are the property of Thermo Fisher Scientific and its subsidiaries unless otherwise specified.1468817026

**ThermoFisher**  
SCIENTIFIC



### Turbidity platform for lab and online

The Hach TU5 Series Turbidity Platform comprises both laboratory and online turbidimeters. The platform employs 360° x 90° detection technology, which uses an optical design that sees more of the sample than other turbidimeters, delivering low-level precision and sensitivity while minimising variability from test to test.

The platform reduces the time needed to obtain a turbidity measurement, with 98% less online sample surface area to clean, sealed vials for calibration, and the elimination of the need for indexing and silicone oil in the lab. A smaller online sample volume means turbidity events are detected almost immediately.

The platform offers the option of three different instruments — one for lab and two for online measurements. The TU5200 is for use in the laboratory, while the TU5300 and the TU5400 are both equipped to provide continuous measurements. The user-friendly interface and improved workflow are suitable for operators of all skill levels.

**Hach Pacific Pty Ltd**

[www.au.hach.com](http://www.au.hach.com)

### Metals analysis in food and agricultural products

The PlasmaQuant MS from Analytik Jena provides measurement of elemental composition in food and agricultural products in order to ensure product safety and maintain adequate levels of nutrition.

With concentrations typically ranging from sub parts-per-billion to high parts-per-million in solution, inductively coupled plasma mass spectrometry (ICP-MS) provides fast analysis of samples over a large concentration range.

**MEP Instruments Pty Ltd**

[www.mep.net.au](http://www.mep.net.au)

Rapid  
Results.  
Real  
Answers  
Sooner.

Products to ensure food safety;

- Hygiene monitoring
- Pathogen detection
- Microbial swabbing
- Microbial enumeration
- Allergen detection
- Antibiotic residue detection
- Sample collection and transport

### Portable colorimetric chlorine test kit

The Electro-Chemical Devices HCA1 Portable Colorimetric Chlorine Test Kit is suitable for testing free and total chlorine in drinking water, waste water, environmental waters, cooling towers and rinse waters in the food and beverage industry.

The portable test kit is designed to use the Micro Strip reagent delivery system. The kit is supplied with 100 test strips for free chlorine and 100 test strips for total chlorine. Test strips for combined chlorine, chlorine dioxide, high-range chlorine and peracetic acid are also available.

The test system used in the kit is accepted by most health departments because this test is USEPA (DIN Standard 38 408 G4, ISO 7393/2) accepted for testing requirements for free and total chlorine. All tests have been calibrated using certified reference standards and standard analytical spectrophotometric methods. The algorithm in the software of the test kit mirrors the AWWA, US EPA, DIN and ISO reference test methods for chlorine.

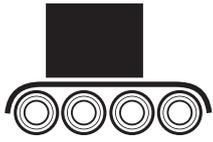
**AMS Instrumentation & Calibration Pty Ltd**

[www.ams-ic.com.au](http://www.ams-ic.com.au)



Phone + 61 2 9882 3666  
Email [amsl@amsl.com.au](mailto:amsl@amsl.com.au)  
Web [www.amsl.com.au](http://www.amsl.com.au)

# Processing



### Toshiba launches portable electrolysed functional water generator

Toshiba Corporation has launched a portable, desktop electrolysed functional water generator that produces hypochlorous acid water.

Using the same technology as industrial cleanrooms, the EWP-001 produces a safe, low-cost antibacterial steriliser and deodoriser — hypochlorous acid water. Produced by electrolyse of water and salt, without any need for hazardous chemicals, the water is effective against a wide range of bacteria and viruses, including influenza and noroviruses. It does not cause the rough skin that results

from constant use of alcohol-based steriliser and is safe enough to be taken orally. Hypochlorous acid water is also effective as a deodorant that counteracts the odours of ammonia and methyl mercaptan, both released by foodstuffs as they start to age.

Similar in size to an electric kettle, the device can produce one litre of weak hypochlorous acid water in 3 minutes. It is expected to find a wide range of uses in hygiene management, including as a handwash in restaurants, for sterilisation of food processing facilities, medical facilities, nursing homes and day-care centres, and in agriculture and stockbreeding.



### Electronic recall system receives HACCP certification

GS1 Australia's electronic product recall notification management system has received certification from HACCP Australia.

The Recall service — designed to minimise the impact and cost of food and beverage products recalled and withdrawn from the supply chain — has been certified as 'effective and suitable for businesses that operate a HACCP based Food Safety Programme'.

According to Richard Jones, GS1 Australia's general manager — marketing and quality services, Recall is the first online recall portal to be approved and certified by HACCP, enabling subscribers of the service to comply with HACCP requirements for recall communications such as notifications, reporting and tracking of communications.

Martin Stone, technical director of HACCP Australia, said, "HACCP protocols are designed to ensure consumer safety by preventing as many food hazards as possible. A food safety program should be put in place to prevent any danger from those hazards. Food safety programs always include procedures for product recall."

Stone said the Recall service maximises the effectiveness of a product recall, which can reduce the risk to consumer safety.

### Genome sequencing links recalled flour to *E. coli* outbreak

Almost six weeks after General Mills recalled 4.5 million kg of flour in the US due to suspected *E. coli* contamination, officials have found the 'smoking gun' in the investigation, matching *E. coli* O121 from a sample of General Mills flour recovered from a sick person's home to the outbreak strain that has sickened at least 38 people since December.

Food Safety News reports investigators have been looking for such evidence since late April when patient interviews revealed that raw dough made with flour was a common denominator among outbreak victims.

"On June 10, FDA whole genome sequencing on *E. coli* O121 isolates recovered from an open sample of General Mills flour belonging to one of the consumers who was sickened was found to be closely genetically related to the clinical isolates from human illnesses. The flour came from a lot that General Mills has recalled," according to an update from the Food and Drug Administration.



Image courtesy of david pacey (via flickr) under CC BY 2.0

## Cleaning skills training videos

To assist businesses to keep up with the pace of productivity and technological advances in the cleaning sector, Euro Pumps has expanded its range of tub, crate and board washers video training courses to include other cleaning skills.

Consistently achieving AQIS and export quality cleans requires improved cleaning standards and methodologies to reliably meet increasing industry quality benchmarks.

The series of training videos and downloadable support materials is aimed to improve cleaning efficiency. The training materials are available to all Euro Pumps customers and can be customised to suit a specific plant or piece of equipment.

As well as tub, crate and board washing, the material will cover basic hose skills and light maintenance. Further training materials for cleaning products and maintenance staff will be developed according to demand.

Support materials available include a hard-copy bound manual editable training assessment sheet.

**Euro Pumps Pty Ltd**

[www.europumps.com.au](http://www.europumps.com.au)



## Radar level sensor for liquids

VEGAPULS 64 is a radar level sensor for liquids, operating at a frequency of 80 GHz. The product features high dynamics and good-quality focusing, enabling media with poor reflective properties, ie, low dielectric constant, to be measured.

Due to the improved focusing, the beam simply passes by internal tank installations or build-up. Interfering signals, which previously had to be filtered out with false signal suppression, now play hardly any role in the measurement process. Moreover, VEGA offers process fittings with an antenna diameter of only 3/4".

The technology also allows precise measurement of the level very close to the tank bottom. This opens up perspectives in determining the level in small containers used in the pharmaceutical and biotech industries, as well as determining the amount of fuel left at the bottom of large fuel tanks. Measurement accuracy is  $\pm 2$  mm, even with a working range up to 30 m.

**VEGA Australia Pty Ltd**

[www.vega.com/au](http://www.vega.com/au)



**ACCESS THE  
LATEST INSIGHTS  
FROM GLOBAL +  
LOCAL LEADERS  
OF INDUSTRY**

**integrity+innovation**

**23<sup>RD</sup> AUSTRALIAN HACCP CONFERENCE**



**BOOK NOW!**

**5-6 OCTOBER 2016  
MELBOURNE**

[australianhaccpconference.com.au](http://australianhaccpconference.com.au)

Presented by



# Stopping biofilms before they start

© iStockphoto.com/micro\_photo

**Slimy biofilms are a perfect environment for microorganisms — here, protected against external influences, bacteria can grow undisturbed. They can be the food processor's scourge as eliminating biofilms can be quite difficult. Much better to stop them forming in the first place. This is what researchers at Kiel University, in cooperation with colleagues at the Hamburg University of Technology, are trying to do.**

**T**heir study shows that strategies from nature are particularly effective at inhibiting biofilms. Biofilms originate when cells attach to surfaces and organise themselves into coordinated three-dimensional consortia, embedded in an extracellular matrix. This matrix can protect pathogenic bacteria from sanitisers allowing them to proliferate and reinfect equipment and product.

In order to coordinate themselves and establish consortia on surfaces, the bacteria must communicate with each other via signal molecules (autoinducers). If this communication is disrupted, no biofilm can be formed. This cell-to-cell communication, known as 'quorum sensing' (QS), can be influenced by disruptive biomolecules ('quorum quenching' or QQ proteins). Proteins can break down these signal molecules, or modify them in such a way that they are no longer functional.

The Federal Ministry of Education and Research (BMBF) in Germany is funding the research to find QQ proteins which disrupt this communication between bacteria as effectively as possible. In contrast with previous studies, Professor Ruth Schmitz-Streit and Dr Nancy Weiland-Bräuer, also from Kiel University, concentrated their search on natural environments outside the laboratory.

"Because principles which occur in nature have evolved and established over a long time period and are therefore particularly effective," said Schmitz-Streit.

This was demonstrated by the research team by means of a metagenomic approach: they took samples from seawater, from glaciers, but also from jellyfish or from biofilm residue

from a washing machine. They extracted the complete DNA from the samples and used this as a basis to identify proteins with the ability to break down the signal molecules, or render them ineffective.

While doing so, Schmitz-Streit and Weiland-Bräuer determined that the number of QQ proteins which can prevent cell-to-cell communication is extremely high in the marine environmental samples taken — higher than with terrestrial samples. "As the oldest ecosystem, the marine system — including the oceans, water or algae — is incredibly rich in new, undiscovered substances. It offers a huge potential regarding biological activities and QQ mechanisms," said Schmitz-Streit.

The research group discovered even more: the communication-disrupting protein QQ-2 proved itself to be particularly effective during the investigations. "This protein is very robust and can prevent many different types of biofilms," explained Weiland-Bräuer. Previous studies focused more on disrupting a particular language of bacteria. "In contrast, the QQ-2 protein is orientated towards a 'universal language' and can disrupt the communication of different bacteria. This makes it a 'general troublemaker'."

This fundamental research provides important results which may lead to biotechnological and medical applications in future. If the communication of pathogenic bacteria can be deliberately disrupted, bacteria will be prevented from forming biofilms.

The biologists have published their findings in *Frontiers in Microbiology*. 

 our capabilities have just



**tna** is the only global, single source supplier for snack food manufacturers, offering an entire line of processing and packaging solutions. From washing and peeling, to frying the perfect potato chip, to high performance packaging; we do everything but grow the potatoes.



controls integration & SCADA | materials handling | processing | freezing & cooling | coating | distribution | seasoning | weighing | packaging | metal detection | verification | inserting & labelling | project management | training |

For enquiries, contact: paul irwin » regional sales manager - australia  
p: +61 (3) 9839 2300 » m: +61 412 366 351 » [info@tnasolutions.com](mailto:info@tnasolutions.com)

# VALVES FOR FOOD, BEVERAGE, CHEMICAL AND PHARMACEUTICAL PRODUCTION & PROCESSING



ALL STAINLESS STEEL CONSTRUCTION



AUSTRALIAN AGENT & TECHNICAL SUPPORT



PRESSURE & SAFETY SYSTEMS

Tel: (03) 9699 7355

[www.pressureandsafetysystems.com.au](http://www.pressureandsafetysystems.com.au)

933/PSS-VN/1FT



## Flow switch/monitor

Designed for industrial processes, manufacturing operations, pumps, compressed air, gas compressors and HVAC systems requiring flow assurance and alarming, the compact SIL 2 compliant FS10i Flow Switch/Monitor from Fluid Components International (FCI) features good performance and operation.

Wherever detection and user warning of a flow rate that is either too high, too low or a no-flow condition is required, the flow switch/monitor can be used. In air, gases, water or other liquids, the flow-sensing instrument can be used for repeatable and fast-responding flow trip point or alarm warning within seconds.

The product features air/gas sensitivity and a setpoint range from 0.076 to 122 MPS, or from 0.003 to 0.15 MPS for water or liquids. It is suitable for use in fluid temperatures from -40 to 212°C and at pressures up to 138 bar, with applications including cooling water and fluids, leak detection, lubricant flow assurance, ventilation verification, chemical injection assurance, nitrogen purge verifications and compressor leak detection.

The device comes with a 1 A relay output for alarm/trip point setting, instead of an open collector, and a 4–20 mA analog output for trending and monitoring. Trip points can be set as high or low and can be adjusted with hysteresis and/or time delay settings. The 4–20 mA output is rangeable by the user in the field installation.

Developed with FCI's no-moving-parts thermal dispersion sensing technology, the flow switch/monitor is temperature compensated for dynamic plant and process operating conditions. It is constructed of all wetted parts and manufactured with 316L stainless steel and Hastelloy C22 thermowells for years of service with virtually no maintenance.

**AMS Instrumentation & Calibration Pty Ltd**

[www.ams-ic.com.au](http://www.ams-ic.com.au)



# Welding and hygiene in the food and beverage industry

The hygienic requirements of the food and beverage industry place high demands on the welds that hold tanks, pipes and vessels together.

**T**he requirements for a high-quality weld and weld surface finish are paramount in the dairy and other food and beverage industries, as the consequences of poor surface and weld quality can be costly and dangerous.

Recent contamination scares in the dairy sector provide some examples of the consequence of not getting things right. In effect, every metre of weld inside a storage or process tank or vessel represents a risk to be managed. Fabricators must make significant efforts to ensure that both the weld integrity is adequate and that the surface finish meets the specified requirement for hygiene.

## Automatic keyhole plasma arc welding (PAW)

In the early 2000s, after a number of in-house implementations of semiautomatic welding, Furphy Engineering began searching for automated welding equipment to produce higher quality welds with improved efficiency. A global search resulted in the selection of plasma arc welding (PAW) as the desired welding method.

PAW enables an excellent weld quality to be produced, with the introduction of minimal heat and with no removal of parent material required for weld preparation. Unlike the TIG process, which is susceptible to tungsten inclusions from the exposed electrode, PAW has no exposed electrode and, consequently, significantly reduced risk of inclusions.

Weld quality is evidenced by the superior radiography test performance that results from the PAW method. Butt welds up to 8 mm thickness can be completed in a single pass with only a gas backing shield required. Weld reinforcement is minimised and this assists in the subsequent surface treatment to obtain a smooth weld finish suitable for sanitary applications.

Early PAW equipment didn't come preloaded with the variety of programs that modern-day plasmas do and, when compared to other processes of the day, the systems were at first intolerant of all but the most precise preparation. This fostered a strong focus on stringently consistent weld preparation and the development of a robust welding R&D program became essential to realising the full potential of the process.



“ It is also important to not overdesign either, as CIP devices with higher flow rates will result in excess use of caustics and other fluids, ultimately creating excess cost every time the cleaning process is run. ”

The need to tightly control preparation and understand the technicalities of this process in turn led Furphy Engineering to focus on welding system control. The company expanded its AS 1796 welding supervisors program and today has three WTIA accredited AS 1796 Certificate 10 Welding Supervisors, with a fourth in the pipeline. Welding supervisors oversaw the development of the PAW process and the writing of the welding programs, still in use today.

Furphy Engineering is now operating four PAW machines, with another to be commissioned with the completion of a significant workshop extension in September, which together perform 100% of the seam welds in the hundreds of tanks that are produced in its Shepparton workshops. The consistency now delivered by the PAW process has now dovetailed with the automated planishing and polishing systems to deliver the highest quality and consistency in sanitary finishing essential for clients in the food, beverage and pharmaceutical industries.

These automated planishing and polishing systems not only reduce fabrication time and costs, but result in a consistently smooth and high-quality finish to weld seams that is integral to achieving a sanitary finish. The surface roughness of the internal weld seams is specified in ‘Ra’ — a measurable roughness, in micrometres, which is obtained using an Ra meter. Traditionally, surface roughness has been specified in ‘grit’, which is not practical in a sanitary application. Grit refers to how coarse the polishing medium is. The finished surface is not measurable in grit and may have a varied roughness when completed by different operators. This is not ideal when working within hygienic environments.

### Other tank design considerations for sanitary applications

There are many design considerations that must be made when manufacturing tanks for sanitary applications, including the design for and subsequent selection of clean-in-place (CIP) devices, nozzle configuration and associated fittings, which all affect internal surface finishing.

When selecting CIP devices, whether it be spray balls or the higher pressured rotary spray heads, it is important to design in such a way to ensure that the entire internal surface of the vessel is adequately wetted during the CIP process and that no shadowing is present — either as a result of internal components or poorly designed and located fittings — to ensure a sanitary clean is achieved. It is also important to not overdesign either, as CIP devices with higher flow rates will result in excess use of caustics and other fluids, ultimately creating excess cost every time the cleaning process is run. In various process tank applications, multiple spray devices are required to ensure wetting of the entire surface is achieved.

When designing and fabricating tanks for sanitary applications, Furphy Engineering will form a knuckle radius to all tank ends, heads or cones, as well as flare openings where tubes and nozzles are to be welded. This enables all welded connections to be butt welds, which provides a flush connection with rounded edges. Eliminating these sharp corners is necessary to ensure a sanitary finish without areas prone to product and bacteria build-up.

### Advanced thermal exchange plate

Technical expertise and process development in the welding area enabled the development of Furphy Engineering’s Laser Beam Welded (LBW) ATEX (Advanced Thermal Exchange) plate. The use of cooling (or heating) cavity plates — an outer skin on a tank shell separated by a cavity to enable liquid to be passed through and across the surface of the tank to cool or heat — is one of a number of heat transfer options available when designing a process or storage tank.

The term used often in the industry for such equipment is ‘dimple plate’, owing to the dimpled appearance of the welds



°Brix



# fact

## Optimisation in hygienic processes through key technologies

### Measurement solutions for the food and beverage industry – technology driven by KROHNE

- Complete portfolio for flow, level, pressure and temperature measurement as well as inline analysis opens up new possibilities for:
  - Reliable measurement of mass, density, and concentration of air-containing products
  - Line analysis of compositions, e. g. protein, lactose and fat content in milk
  - Energy measurement in hot water and steam circuits, air compressor control (FAD)
  - Non-contact level measurement in storage containers without air purge
- Consulting, maintenance and service concepts for any plant size
- EHEDG, 3A, FDA, CIP/SIP, hygienic connections

▶ products ▶ solutions ▶ services

**KROHNE**

▶ measure the facts

**KROHNE Australia**  
5 Phiney Place, Ingleburn NSW 2565, Tel: 02 9426 1700, [www.krohne.com](http://www.krohne.com)



which attach the outer skin to the shell. The manufacture of this plate was originally very labour-intensive, with the pressed and punched plate being placed over the outer skin of the formed tank and then manually welded at the punched holes and outer seams. Modern methods of producing a dimple plate involve fusing the flat, thinner outer skin to the shell of the tank prior to rolling the tank and then using hydraulic (Furphy Engineering inflates dimple plates to 4000 kPa) pressure to deform the thinner outer skin and therefore create the cavity.

An ATEX plate is essentially pressure equipment. Operating pressures within the cavity can be as high as 1000 kPa. The result of poor welding in the manufacture of a dimple plate can be disastrous. Leaking of coolant (dimple plates can be used to heat but are predominantly used to cool) through the

“ The result of poor welding in the manufacture of a dimple plate can be disastrous. ”

shell and into the tank can contaminate and destroy the stored product. Leaking of coolant externally can damage insulation. Repair can be difficult as the dimple plate is usually covered by insulation and a hard cladding, both of which must be removed. Weld tint from repair operations is likely and must be removed by gaining access to the inside of the tank.

Single embossed dimple (lap welded without through penetration) using the LBW process isn't captured in Australian standards. The designer/maker is instead referred to ASME VIII (and IX) to establish the necessary design verification testing and subsequent manufacturing requirements, such as weld procedure qualification.

Furphy Engineering utilised a hybrid test regime incorporating all key elements, in consultation with experts such as the WTIA, and also obtained third-party witnessing and approval as is a requirement of the test standard. As a result, Furphy Engineering's ATEX plate is Worksafe design registrable (if required), independently verified and manufactured in compliance with the pressure equipment standard for maximum reliability — a key element in any process plant environment. 

Furphy Engineering  
www.furphys.com.au

## Spring retractable hose reels with safety brake

Spring Retractable Hose Reels have made a significant difference to the health and safety of Australian workers across a wide range of industries. But unless carefully controlled by the user, there is a tendency for these hoses to retract at speed.

The problem arises if the operator drops or releases the hose when it's under tension. In this situation, there is a chance the retracting hose and heavy-duty hose gun might whip back — potentially injuring a worker or damaging equipment. Speed-limiting devices are now available to remove the danger of the hose whipping back.

Tecpro Australia has released a Safety Brake system to slow down the speed of hose reel retraction. The brake can be used in most applications and has earned FDA approval for use in the food industry. The safety brake uses a compact, adjustable pawl locking mechanism that attaches to the Spring Retractable Hose Reels.

**Tecpro Australia**  
www.tecpro.com.au





## Electromotive process valves

The Bürkert Types 3360 and 3361 electromotive process valves offer precision control without the need for compressed air. The valves are designed as a complete unit and provide a robust, highly efficient solution suitable for process applications where reliability and precision are key factors. They are available with either a globe valve (Type 3361) for the highest precision or an angle seat valve (Type 3360) for more general applications.

The actuator can be specified with an HMI display module for configuring the valve settings, or for a more basic application, the HMI can be omitted and the fundamental functions of the valve can be operated via a series of four DIP switches and two buttons.

An optional feature ensures a safe valve position is achieved in the event of a power failure. The SAFEPOS energy pack allows the valve to be operated automatically to a predetermined position.

The energy pack, with a nominal lifetime of 10 years, can be monitored through the network connection.

The control valve housing incorporates an illuminated LED ring which indicates the status and can be seen from any direction, and there is a mechanical position indicator which shows the exact valve position that still works in the event of a power failure.

A service connection enables the COMMUNICATOR software to configure the device, apply fault diagnosis and update software. There are also several fieldbus options for networking, such as EtherNet/IP, Modbus and Profinet, which are provided through the fieldbus gateway.

**Burkert Fluid Control Systems**

[www.burkert.com.au](http://www.burkert.com.au)



# SaniForce™

There's a better way to unload containers!



[www.graco.com/Saniforce](http://www.graco.com/Saniforce)

Contact Stuart Jackway for a free on-site trial:

0417 351 250 - [Stuart\\_A\\_Jackway@graco.com](mailto:Stuart_A_Jackway@graco.com)



## Central control systems for multiple compressor installations

Atlas Copco's ES Controllers increase the efficiency of multiple machine installations, offering a range of control and monitoring functions for a variety of input/output.

The controllers can help reduce the pressure band of the compressed air or vacuum installation, equalise the running hours and minimise the unloaded running of the machines. The systems produce an energy-efficient compressed air or vacuum system that can reduce energy costs.

With a multiple compressor installation, the system will select the machine(s) to run based on demand and when air is needed in the airnet, which ensures efficient use of energy. In an installation with multiple VSD air compressors,

one VSD compressor will regulate the demand and the other VSD compressors will run at optimal speed to ensure the best possible energy efficiency.

The core function of the system is to equalise the running hours of a multiple air compressor or vacuum pump installation, which will enable effective and equal use of all machines within the installation. This will ensure the most effective use of the installation as well as enable all machines to be serviced during a single visit, providing potential savings on maintenance interventions.

The controllers will eliminate the need for operators to manually change settings on a continuous basis. The higher-end controllers can be programmed to change the installation sequences automatically. The controllers can control Atlas Copco compressors alongside other compressors in the installation.

**Atlas Copco Compressors Australia**

[www.atlascopco.com.au](http://www.atlascopco.com.au)



SOLUTIONS TO KEEP YOU MOVING

# USE OUR NSF H1 FOOD GRADE RANGE TO COVER ALL YOUR LUBRICATION NEEDS



NSF H1



- ▶ Our CRC range of NSF H1 food grade products have been accredited and endorsed for use in food production by HACCP Australia.
- ▶ Manufactured to the highest standards, our products work in conjunction with our Greenlight Checkpoint Program.
- ▶ When you choose our NSF H1 products you are endorsing that your company complies to the strict standards imposed by NSF.



2679GDFX\_0716

For further information contact CRC Industries (Aust) P/L 1800 224 227 [info@crcind.com.au](mailto:info@crcind.com.au) [www.crcindustries.com.au](http://www.crcindustries.com.au)



# Controlling Easter egg and moulded chocolate thickness

Jennifer Chu, MIT News Office

Since the 1600s, chocolatiers have been perfecting the art of crafting a perfectly smooth and even chocolatey shell.

**N**ow, a theory and a simple fabrication technique derived by MIT engineers may help chocolate artisans create uniformly smooth shells and precisely tailor their thickness. The research should also have uses far beyond the chocolate shop: by knowing just a few key variables, engineers could predict the mechanical response of many other types of shells, from small pharmaceutical capsules to large aeroplane and rocket bodies.

The researchers developed a fabrication technique to quickly create thin, rubbery shells, which involved drizzling liquid polymer over dome-shaped moulds and spheres such as ping pong balls. They allowed the liquid to coat each mould and cure, or solidify, over 15 minutes. They then peeled the resulting shell off the mould and observed that it was smooth — virtually free of noticeable defects — with a nearly uniform thickness throughout.

Combining this simple technique with the theory they derived, the team created shells of various thicknesses by

changing certain variables, such as the size of the mould and the polymer's density. Surprisingly, they found that the shell's final thickness does not depend on the volume of liquid or the height from which it is poured onto the mould.

"Think of this formula as a recipe," said Pedro Reis, the Gilbert W. Winslow associate professor of mechanical engineering and civil and environmental engineering at MIT. "I'm sure chocolatiers have come up with techniques that give empirically a set of instructions that they know will work. But our theory provides a much better, quantitative understanding of what's going on, and one can now be predictive."

Reis hopes that the group's theory will reinvigorate studies in shell mechanics, a field that saw significant development in the 1950s and '60s.

"This is a really simple, robust, rapid prototyping technique, and we've established design principles together with a predictive framework that characterises the fabrication of



thin shells,” Reis said. “I think that will be powerful. We’re revisiting an old topic with new eyes.”

Reis’s co-authors include lead author and graduate student Anna Lee, postdoc Joel Marthelot and applied mathematics instructor Pierre-Thomas Brun, along with graduate student Gioele Balestra and Professor François Gallaire at the Swiss Federal Institute of Technology in Lausanne, Switzerland.

### The thick and thin of it

The team was initially inspired by videos of chocolatiers making bonbons and other chocolate shells. By simply pouring chocolate into moulds, then inverting the moulds to let excess chocolate drain out, chocolate makers create shells of relatively uniform thickness. Reis’s team wondered whether there was a way to precisely predict the final thickness of chocolate and other shells that start out as a liquid film.

Lee and Marthelot used an analogous technique to experimentally create their own shells, using a liquid polymer solution that they drizzled over dome-shaped moulds and spheres. After peeling the resulting shell off each mould, they cut the shell in half and found it was nearly the same thickness from top to bottom. But why?

To answer this question, Reis’s team systematically characterised the coating dynamics in each of their experiments, including the physical properties of the polymer, the size of the mould, how fast the fluid flows down a mould and the time it takes for the polymer to cure.

Based on their data, the researchers developed a simple formula to estimate the final thickness of a shell, which essentially equals the square root of the fluid’s viscosity, times the mould’s radius, divided by the curing time of the polymer, times the polymer’s density and the acceleration of gravity as the polymer flows down the mould.

The formula boils down to the following relationships: the larger a mould’s radius, the longer it takes for fluid to flow to the bottom, resulting in a thicker shell; the longer the curing time, the faster the fluid will drain to the bottom, creating a thinner shell.

“Reis’s team wondered whether there was a way to precisely predict the final thickness of chocolate and other shells that start out as a liquid film.”

### Like waiting for chocolate

The researchers, led by Gallaire, then developed a numerical and analytical model to further test their simple mathematical formula, exploring more complex experimental configurations that are not easily feasible in the lab.

“You could go in the lab and lay down tons of ping pong balls and test various initial conditions, which is what Anna and Joel have been doing to some extent, but with numerics, you can get really creative,” Brun said.

For instance, in their models, the researchers explored complex coating patterns and the effects of changing a polymer’s curing time.

Ultimately, through modelling and experiments, Reis and his colleagues found they were able to control the thickness of a shell by shortening the polymer’s curing time. After mixing the polymer, they simply waited for it to thicken up before pouring it onto a mould. Because the polymer was already slightly solidified, it didn’t take that much longer to fully cure. The result: more polymer solidified onto the mould rather than draining off.

“By waiting between mixing and pouring the polymer, we can increase the thickness of a shell by a factor of 11,” said Lee.

“This flexibility of waiting gives us a simple parameter we can tune, depending on what we want for our final goal,” Reis said. “So I think ‘rapid fabrication’ is how we can describe this technique. Usually that term means 3D printing and other expensive tools, but it could describe something as simple as pouring chocolate over a mould.” 



## Distributed control system with Profinet

Emerson Process Management, working with MYNAH Technologies, has expanded customers' network possibilities and application options by adding Profinet capabilities to the DeltaV distributed control system (DCS).

The addition of Profinet saves DeltaV users time and effort by enabling direct connection between the DeltaV DCS and plant floor devices such as motor control centres, variable speed drives and PLCs in process automation businesses. Users no longer need to use a protocol converter to connect to the system.

Profinet joins a wide range of DeltaV ethernet-based protocols, such as Modbus/TCP and Ethernet/IP. The capability is easily added to the system via both M-series and S-series Virtual I/O Module 2 (VIM2) interfaces.

The Profinet driver supports simplex VIM2 modules deployed with commercial off-the-shelf (COTS) network equipment. For enhanced reliability and availability, simplex VIM2 modules can be deployed with an external switch that handles media redundancy network topology via Media Redundancy Protocol (MRP) and also behaves as the ring master.

Saving time and increasing safety, the VIM2 interface and firewall function allow a high level of access without sacrificing control system security and integrity. The VIM2-based Profinet architecture enables users to optimise expansion activities or perform maintenance operations

on applications in remote locations using a laptop with vendor-specific diagnostic tools — all while constantly monitoring applications from a centralised network.

**Emerson Process Management Aust P/L**

[www.emersonprocess.com.au](http://www.emersonprocess.com.au)

## Mag flows with IO-Link!



 **IO-Link**

### Flow Rate, Totalising and Temperature measurement – all in one unit!

- Robust high-grade stainless steel housing for demanding applications
- High accuracy, repeatability and measurement dynamics
- Suitable for conductive media
- Also available with EPDM O-ring for drinking water applications
- Different process connections possible using adapters
- 4-digit LED display for representation of the units

### IO-Link unlocks the true potential of your sensor!

- Read multiple process values from a single sensor
- Remote parameterisation of the sensor

ifm – your IO-Link system partner.

**Contact us today! 1300 365 088**  
[sales.au@ifm.com](mailto:sales.au@ifm.com) · [www.ifm.com/au](http://www.ifm.com/au)

**ifm – close to you!**



## Magnetic cooling system

Cooltech Applications has launched a commercial magnetic cooling system for its magnetic refrigeration system (MRS) product line. The magnetic cooling system utilises a water coolant instead of a refrigerant gas — a major contributor to climate change — resulting in an eco-friendly solution that consumes minimal energy.

With cooling powers between 200 and 700 W, the product is suitable for a range of applications in commercial refrigeration, including medical refrigerators, display cabinets, beverage dispensers, store plug-ins and wine cellars.

Based on the magnetocaloric effect (MCE), which is the heating or cooling of magnetic material caused by applying a magnetic field to it, the cooling system eliminates the harmful gases that are used in compression-based refrigerators. The magnetic unit operates at low pressure with low rotational speed, virtually eliminating vibrations, cutting noise to less than 35 dB and reducing maintenance costs.

The system is currently in beta testing at three sites in various configurations. A version generating high cooling power — 20 kW and beyond — is under development for industrial applications.

### Cooltech Applications

[www.cooltech-applications.com](http://www.cooltech-applications.com)

## Contra shear upgrade

Euro Pumps' Contra Shear CIP upgrades are a plug-and-play upgrade to an existing Contra Shear, increasing its ability to process liquid waste and lowers water treatment and wastewater disposal costs.

The upgrades have enabled systems to achieve 90–95% reductions in water use and almost a complete elimination of manual spot cleaning, according to the company. The module arrives on two shipping pallets with all necessary hardware supplied for the user to connect water and power.

Flexible enough to bolt directly onto most units, a range of pumps and other options are available.

Including reclaimed water or up to 65°C — suitable for fattier products or colder climates — the systems can be used for abattoirs, large-scale food processing, commercial seedlings and nurseries, commercial bakeries, dairies and industrial water treatment plants.

### Euro Pumps Pty Ltd

[www.europumps.com.au](http://www.europumps.com.au)



## Falcon Hybrid

Portioning optimisation for the highest yield results

- Inline portioning solutions for retail
- Fixed weight or thickness capability
- Boneless and bone-in product portioning
- Suitable for fresh, tempered and cooked meats
- Portioning capacity of up to 550 cuts per minute
- Software calculations so product slices all have the same weight
- National support for installation, spare parts, service & preventative maintenance contracts



**Sydney Head Office**  
2/7 Jubilee Avenue  
Warriewood NSW 2102  
Tel +61(2) 9979 6722

**Melbourne Office**  
Unit 31/189B South Centre Road  
Tullamarine Vic 3043  
Tel +61 (2) 9310 3521

W: [cbsfoodtech.com.au](http://cbsfoodtech.com.au) | E: [info@cbsfoodtech.com.au](mailto:info@cbsfoodtech.com.au)

## Moisture analysers

Adam Equipment has expanded its line of PMB moisture analysers, with the PMB 163 offering a capacity of 160 g and readability of 0.01%/0.001 g. The product joins the PMB 53, which has a capacity of 50 g and provides results at 0.01%/0.001 g, and the PMB 202, which offers a capacity of 200 g and provides results at 0.05%/0.01 g.

Moisture analysers allow scientists, researchers and technicians to rapidly dry samples, saving testing time in the laboratory and the field. With simple operation and quick response time, PMB moisture analysers are suitable for use in food processing and quality control, providing an easy way to verify the moisture content in foods and helping production workers assess contents of mixtures and batches.

The PMB's automatic test-setting function enables easy recall for frequent testing of the same items without additional user programming. USB and RS232 interfaces provide speedy connectivity, while a second USB port allows storage of test programs and data on a flash drive. The moisture analysers are self-contained, needing neither additional software nor a network connection for readings. Users can collect data on a production floor or anywhere power is available.

A 400 W halogen bulb heats samples in 1°C selectable increments. Three heating options allow test methods and temperatures to be customised for different materials. The product offers rugged metal housing, automatic external calibration, capacity tracker and a levelling bubble. A pan lifter is included to easily remove samples.

**Adam Equipment (SE ASIA) Pty Ltd**

[www.adamequipment.com.au](http://www.adamequipment.com.au)



GET  
MORE  
OUT  
OF  
FOOD

[WWW.HEATANDCONTROL.COM](http://WWW.HEATANDCONTROL.COM)

We are on    

## FOOD PROCESSING + PACKAGING SYSTEMS

With manufacturing facilities and sales offices worldwide, Heat and Control supports manufacturers with experience, expertise and resources to develop the most value driven and efficient solutions for any food production challenge.

Processing + Packaging Systems  
Snack | Process Prepared | French Fry | Conveying  
Seasoning + Coating | Weighing + Packaging  
Inspection | Controls + Information



[heatandcontrol.com](http://heatandcontrol.com) | [info@heatandcontrol.com](mailto:info@heatandcontrol.com)

# Are your cleaning tools clean?

**Cleaning tools do not only have to be able to do the cleaning job, their design must be such that they cannot harbour and spread pathogens.**

**C**leaning equipment can be a major source of contamination either through poor cleaning of the cleaning equipment or poor hygienic design (or both).

The European Hygienic Engineering Design Group gives the following criteria for cleaning equipment design:

- Free of crevices and contamination traps — smooth joints, absence of small holes, recesses and sharp internal angles.
- A smooth surface finish (Ra less than 0.8 µm).
- Easy to clean (and dry).
- One-piece construction or quick and easy to dismantle/reassemble with easy access to all areas for cleaning and disinfection.
- Made of food safe, non-toxic materials.
- Well constructed and durable.
- Non-absorbent.
- Resistant to cleaning and disinfection chemicals.
- Able to withstand temperatures experienced in dishwashing and autoclaving.

A lot of the cleaning equipment currently used in the food industry is difficult to clean. Take brushware, for example. The most commonly used construction method for brushes and brooms is drilling holes into a solid plastic block and then stapling tightly packed filaments into the

holes. This creates possible dirt traps both within the holes and between the filaments.

The ability to clean the cleaning equipment itself is critical to ensuring food safety and quality, and the application of good hygienic design principles makes this possible. This may be the driver behind the new audit requirement in the British Retail Consortium (BRC) Global Standard for Food Safety v7, that “cleaning equipment shall be: hygienically designed and fit for purpose” (section 4.11.6).

The ability to quickly and easily decontaminate cleaning tools not only saves time and effort but also improves food safety, quality and shelf life. By minimising the risk of cross-contamination, the risk of product rejection and, consequently, product waste is reduced. The risk of product recall or prosecution is also reduced, thus protecting/improving company reputation and income.

Maybe it is time to critically look at the cleaning equipment in use in your facility rather than at the job the equipment does. It is essential that when choosing cleaning equipment for use where hygiene is critical, the equipment be selected with European Hygienic Engineering Design Group principles in mind. 

WR&D Wells Pty Ltd  
www.wrdwells.com



## SENSOR TECHNOLOGY

- ✓ Food Quality Assurance
- ✓ Production line optimisation
- ✓ 40+ years industry experience



### OPTONCDT 1402 SC (IP69K)

- Ideal for QA tests - measures displacement, distance and position
- IP69K Protection - Fully dust proof and protected against high pressure jet cleaning



### THERMOMETER CT

- Single point temperature measurement
- One of the smallest Infrared (IR) sensors in the world for non-contact temperature measurement



### LEO RECORD

- Measures and records pressure and temperature
- High measuring accuracy and resolution



### NCDT3100

- Ideal for Displacement, distance and position measurements to a metal surface
- IP67 Protection - Super-sealed and extra-robust design



### NOHKEN LEVEL SENSOR

- Prevents overflow and empty tanks containing solid foods
- Easy torque adjustment and compact



### SEALTICK TSE2032

- Water bath leak tester
- Identify leakage position on food packages

## CUSTOM SOLUTIONS

Do you have a **specific requirement**?  
We provide customised measurement solutions in high quality and at a reasonable price.

## CONTACT US

 [www.bestech.com.au](http://www.bestech.com.au)

 [enquiry@bestech.com.au](mailto:enquiry@bestech.com.au)

 VIC: 03 9540 5100  
NSW: 02 9624 4233  
QLD: 07 3085 6230

 Melbourne Office (HQ)  
14/44 Garden Blvd,  
Dingley Village,  
VIC 3172, Australia

 Sydney Office  
19/35 Foundry Road,  
Seven Hills,  
NSW 214, Australia

 Brisbane Office  
9/60 Gardens Drive,  
Willawong,  
QLD 4110, Australia

## The art of high-volume winemaking

Set on the northern edge of the Barossa Valley, with 260 ha under vine, Oxford Landing Estate is not small. But by micromanaging 130 two-hectare blocks as separate ecosystems, the grapes are given exactly what they need to achieve optimum flavour, using techniques such as detailed pruning, canopy management and crop thinning.

Winemaking presents challenges of timing and consistency. The grapes need to be harvested at peak ripeness and processed within a critical window of time where the acid and sugar content are at a premium.

Customers get used to a particular label and expect a consistent taste across vintages, but every year the acid level is different and the sugar content is different, as are the aromas and colour of the berries.

The challenge for parent company Yalumba in establishing Oxford Landing was to balance high-volume processing technology with winemaking art.

“The aim for the Oxford Landing winery was an environmentally friendly plant incorporating the latest in winemaking technology, plus a new and unique process stream methodology. The objective was to achieve greater management of the process and the product,” said John Ide, winery operations manager at Yalumba.

The secret, says Ide, is the automated process streams that ensure the grapes are fermented under optimum conditions, given the high-volume throughput. It is particularly critical at all times to control fermentation rate and minimise oxidation, both of which are highly dependent on temperature.

From the moment the skin is broken during harvesting, it's important to move the product quickly through the crushing stage, chilled and into the controlled environments of the fermentation tanks.

The agility needed to meet the demands of frequently changing production demands is met by process automation solutions from Rockwell Automation.



The control and automation system performs sophisticated control of the numerous process streams while at the same allowing the winemakers to exert their influence and apply their experience to achieve the desired result.

Winemakers and operators specify process streams, crushing speeds and fermentation schedules, plus monitor the operational status of the entire plant. The site also allows maintenance operators to keep a close watch on trends using remote access, without having to come to site.

FactoryTalk View SE is a key component of Oxford Landing's automation system, providing a clear view across entire lines and production processes.

At the heart of the system, more than 10 Allen-Bradley ControlLogix programmable automation controllers (PACs) oversee a myriad of drives that control screw feeders, crushers, pumps, presses, agitators and so on, and also encompass enhanced PID control of temperature. “We have introduced a system for automatic dosing of yeasts for ferments which is also controlled by this system,” said Ide.

ControlLogix also controls the advanced refrigeration plant — perhaps the most critical function of all. “The refrigeration plant is our main tool for controlling temperature at all stages of the process,” said Ide, explaining that three ammonia compressors and a pumping system circulate liquid ammonia through the must chillers, ‘rack and return tanks’ and fermentation vessels as required.

The control system works out the required load and directs which should be the lead compressor and what the optimum settings are, based on how much cooling is needed for the required fermentation rates.

The Oxford Landing site employs a number of strategies to ensure environmentally friendly practices. The efficient refrigeration system has the option of off-peak loading to reduce both electricity costs and power consumption through maximised compressor efficiency. In addition, the hot return ammonia gas heats the water used for washing tanks throughout the plant, plus Oxford Landing has its own complete wastewater recycling plant.

The plant and wastewater facility recently won an Environmental award from the South Australian Wine Industry Association for implementing an innovative crossflow filtration system that minimises waste going to the plant while increasing yield.

“In addition, we are currently utilising our newly installed FactoryTalk EnergyMetrix system to control the maximum kVA demand and email alarms when we are nearing the limit. We are in the stages of using the integrated system to automatically shut down other non-critical motors to reduce demand when we are approaching the limit,” explained Ide.

Rockwell Automation Australia  
[www.rockwellautomation.com.au](http://www.rockwellautomation.com.au)



## MORE THAN A VISION THIS IS **SICK**

### Sensor Intelligence.

In industrial environments, providing an effective solution to capture reality requires more than just a vision. With SICK you have the choice. Multiple dimensions, one philosophy: customer needs come first. Even in the face of the most challenging requirements, SICK supports you to realize your vision. Our broad 2D and pioneering 3D vision portfolio based on decades of innovation leadership helps customers worldwide. Positioning, inspection, measuring and reading – all at the same time, if needed. Our global technology experts are specialists in your industry and are located in your corner of the world. SICK's vision sensors see your world as it truly is. We think that's intelligent. For more information please visit [www.sick.com/more-than-a-vision](http://www.sick.com/more-than-a-vision) or call 1800 334 802 (Tollfree).

## Seasoning kale chips more effectively



Due to increased demand from consumers for healthier alternatives to potato chips, Brandneu Foods has seen the popularity of its kale chips soar. The company therefore needed to reassess its production capabilities to meet this demand and stay competitive in an increasingly crowded marketplace.

The Canadian-based company significantly reduced lead times for its range of kale chips by 75% after installing the high-performance tna intelli-flav OMS 5 at its plant in Toronto. In addition to cutting production lead times from 60 days to just 15, the new installation enabled Brandneu to consolidate work space, meaning it can better respond to customer demands for its products. To ensure a smooth installation, tna provided total project management services — from start to finish — offering Brandneu complete peace of mind to concentrate on its day-to-day business objectives.

Brandneu had previously experienced issues with inconsistent flavouring, which had an impact on taste and resulted in significant seasoning losses. The company found that tna's intelli-flav OMS 5 on-machine seasoning system was the solution. Providing both powder flavouring and liquid oil in a single drum, the system features a variable mass seasoning system with a dynamic vibratory weigher to directly control

oil spray. This means only the right amount of oil is applied to each chip — an essential feature for Brandneu, which was keen to maintain the healthy profile of its kale chips.

Thanks to the system's application accuracy, Brandneu was able to minimise seasoning losses in the production process, reducing raw material waste and increasing profitability. In addition, the intelli-flav OMS 5 offers improved coverage and flavour dispersion, enabling Brandneu to apply minimal salt and flavouring without compromising on the overall quality and taste of its kale chips.

The tna intelli-flav OMS 5 system features a simple touch screen that is user-friendly and easy to program for simple operation. This helps plant managers save time in training staff, while also providing total peace of mind.

To meet the high demand for its product, Brandneu needed complete flexibility to change flavours quickly and easily. Addressing this need, tna suggested a second drum that can be changed on the line in less than 15 min. The addition of the second drum means Brandneu can meet orders more quickly and reduce production lead time considerably.

*TNA Australia Pty Ltd*  
[www.tnasolutions.com](http://www.tnasolutions.com)

### External mix stainless steel spray nozzles

Exair's 1/2" large external mix spray nozzles atomise fluids at rates up to 1147 L/h. They can be used on liquids with a viscosity up to 800 cP. The nozzles are available in a narrow-angle flat fan pattern. They combine liquid and compressed air to create a coating of liquid that can be easily adjusted to meet the needs of different applications.

The large external mix atomizing nozzles can be used to coat, cool, treat and paint a variety of products. Used with water, atomising nozzles are an efficient way to evenly cool hot items in automated processes. Since they are external mix, airflow and liquid flow can be controlled independently, which provides precise liquid flow.

The stainless steel construction of these atomizing nozzles adds to their durability and corrosion resistance.

**Compressed Air Australia Pty Ltd**  
[www.caasafety.com.au](http://www.caasafety.com.au)



# we can divert your waste from landfill and give it a second life

- waste recycling and recovery
- organic resource recovery
- renewable energy solutions

Businesses and industries across Australia have ambitious sustainability & environmental goals, reinforcing the need to create new resources from waste. Globally, SUEZ is at the forefront of resource recovery, customising solutions for our customers that transform waste into new products.

To learn more about SUEZ and diversion solutions, visit [www.suez.com.au](http://www.suez.com.au)

## Powering homes with ice-cream waste

Not only is chocolate ice-cream one of the nation's favourite flavours, but it has also emerged as the most powerful flavour for green energy too. This is following an innovative project involving the world's third-largest ice-cream manufacturer, R&R Ice Cream, Iona Capital and resource management company, Veolia in which inedible ice-cream waste is being turned into biogas for the UK National Grid.

The R&R factory, based in Leeming Bar, North Yorkshire, is the UK's largest producer of own label ice-cream as well as top brands such as Nestlé's Fab, Rowntrees' Fruit Pastille lollies, Cadbury's Dairy Milk chocolate sticks, Oreo ice-cream and Yoomoo frozen yoghurt, and now what is left over from the production of these sweet treats will help power local homes.

The sugary sludge consisting of sugar, fat and protein that is left behind after production line cleansing is to be transformed into bio-methane, a biogas. This will then go to the National Grid to heat UK homes, thanks to the nearby anaerobic digestion (AD) facility funded by Iona Capital and operated by Veolia.

The transformation process resembles the human body burning calories, and like our bodies, different flavours of our favourite frozen dessert amount to different levels of energy. It transpires that chocolate ice-cream provides 10% more energy than vanilla, and 20% more energy than strawberry. And if you were to add a chocolate flake to the mix it could boost the energy efficiency by 20%.

The raw material that goes to the AD facility would otherwise be discarded and sent to landfill. Now it is not only avoiding landfill but the by-product that is left over at the end of the AD process is a nutrient-rich fertiliser that can be distributed to farms to improve crop production.

The Leeming facility, which is one of the largest gas-to-grid energy plants in the UK, is now fully functional, and will contribute to the UK Government's target for 20% of the UK's energy generation to come from green energy by 2020.



Image courtesy of Susanne Nilsson (via Flickr) under CC BY-SA 2.0

Veolia Australia and New Zealand  
[www.veolia.com.au](http://www.veolia.com.au)

**SEIFERT**  
wegweisend innovativ

...KEEP COOL!



**Solitherm Slim Line Series**

Available in Cooling Capacities of 320W - 1500W

NEW STOCK AVAILABLE



**Solitherm Compact Series**

Available in Cooling Capacities of 320W - 4000W

NEW STOCK AVAILABLE



**ENCLOSURE CABINET PRECISION COOLING**

Seifert Systems - Precision air conditioning for process control cabinet applications. Designed to keep your electronics cool and operating at optimum performance. Seifert air conditioning incorporates filter-less technology. No need to change filter mats means less maintenance and less down time. Cooling capacities range from 200W to 4kW. Seifert also offer heat exchangers, heaters and fan systems - complete thermal solutions.

A 105 Lewis Rd, Wantirna South VIC 3152  
 E info@seifertsystems.com.au

T +61 3 9801 1906 / F +61 3 9887 0845

[seifertsystems.com.au](http://seifertsystems.com.au)



### Wireless router for separator

SPX FLOW's Seital separators provide separation and clarification technology. The wireless VPN router package enables remote troubleshooting via a secure, wireless connection, designed to minimise any downtime or interruption to production.

Using the wireless router, potential problems can be rectified and the set-up of the separator can be adjusted to ensure it continues to operate. The router is supplied with 20 or 40 hours of remote support.

The router can be quickly moved around the plant as needed, using an Ethernet cable between the router and separator. It then transmits data through a wireless hotspot using a mobile phone, tablet or PC.

**SPX Flow Inc**  
[www.spxflow.com/au](http://www.spxflow.com/au)

### Tub, crate and board washer training videos

Euro Pumps' video training courses for its range of tub, crate and board washers can be watched online or downloaded for repeated use within the workplace.

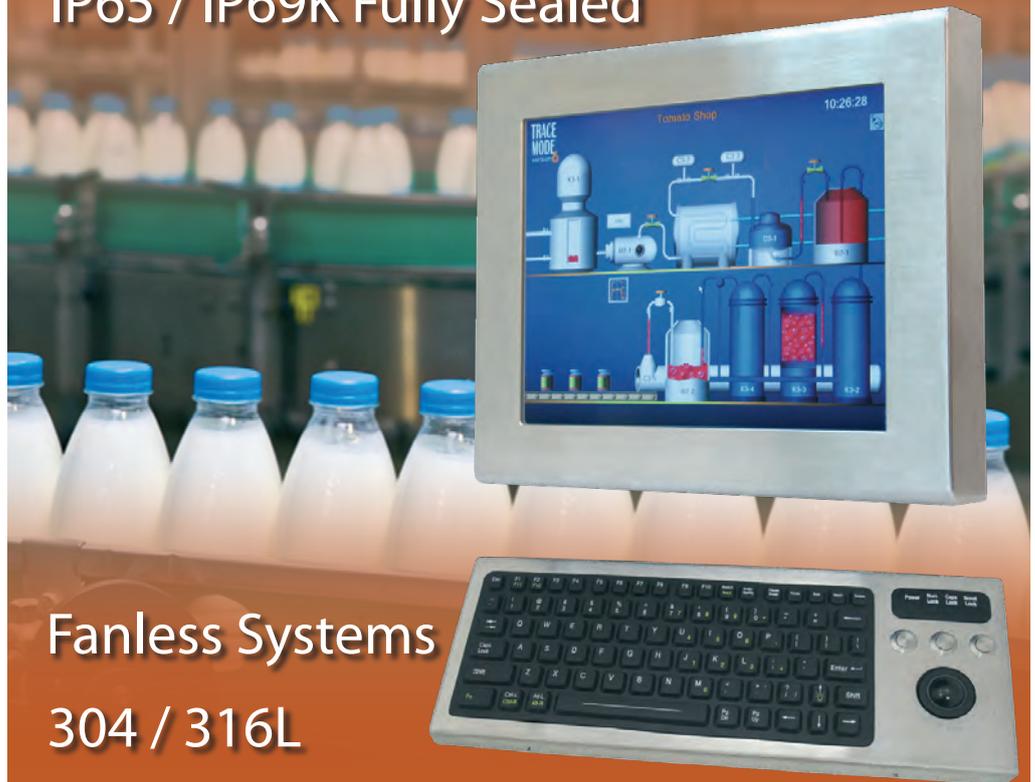
Content covered in the video series includes: tubwasher overview, high water pressure safety, prestart checklist, tub washer operations, post operations reset, optional tub washer extras, general hand cleaning tools, troubleshooting and FAQ, maintenance guide as well as productivity and production efficiency tips.

The training material can be customise and rebranded with a company's logo and can include additional plant-specific content.

With the addition of a small work sheet and short assessment, the videos could address part of a unit of competency — AHCMOM304A - Operate machinery and equipment — that could be used towards either Certificate III in Poultry Production or Certificate III in Food Processing. It can also be used as RPL for most cert 2, 3 or 4 certificates relevant to the industry.

**Euro Pumps Pty Ltd**  
[www.europumps.com.au](http://www.europumps.com.au)

## Stainless Steel Computing Contamination Free IP65 / IP69K Fully Sealed



Fanless Systems

304 / 316L

Corrosion Resistant

**Interworld**  
 ELECTRONICS  
 Better systems. Better solutions

[www.ieci.com.au](http://www.ieci.com.au)  
 Tel: 03 9593 7555

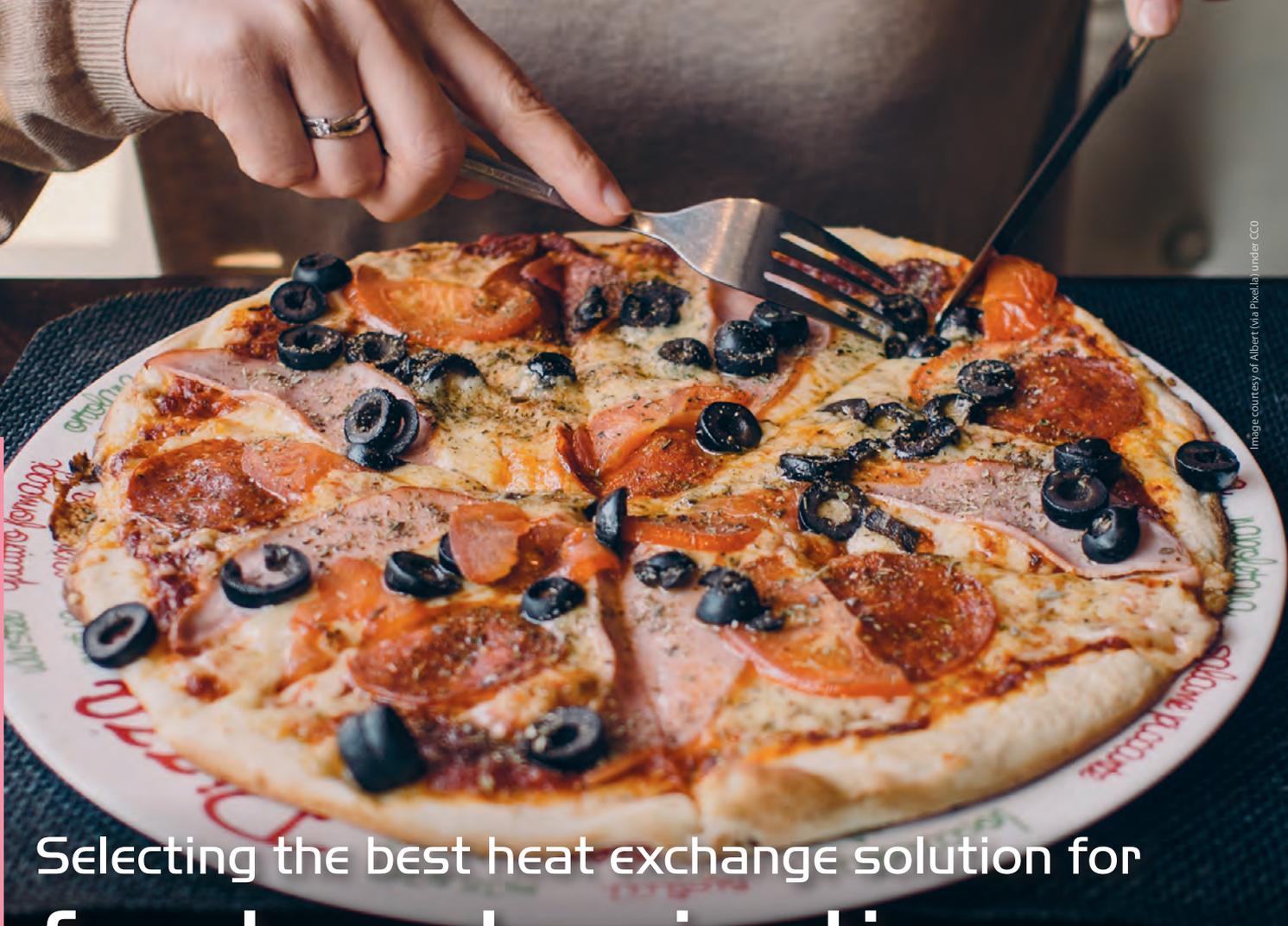


Image courtesy of Albert (via Pixellia) under CC0

# Selecting the best heat exchange solution for food pasteurisation

The texture and viscosity of food is not only an important quality parameter, it also influences how food behaves during production and processing. Therefore, it should be considered when choosing the handling and treatment equipment used in the manufacturing process. This is particularly true when this process has the potential to change the viscosity of the product itself, as can be the case with pasteurisation or cooking.

**P**asteurisation differs from sterilisation in that it only aims to reduce the number of bacterial pathogens to a level where they are very unlikely to cause disease before the specified use-by date and potentially extend the shelf life of the product in question. For alkaline foods it will typically extend shelf life by several days, while acidic foods (with a pH above 4.5) can have their shelf life increased by months. In contrast, sterilisation aims to kill all pathogens present in the food or drink to prevent spoilage for long periods.

There are various different types of pasteurisation based on different combinations of heat and time. Two of the most common are high-temperature, short-time (HTST) and extended shelf life (ESL). When determining the factors required for effective pasteurisation, there are two key variables to consider:

1. The heat required to raise the temperature of the foodstuff by the right amount to destroy sufficient pathogens without changing other characteristics. This is known as the sensible heat.

2. The timing (or extent) of heat treatment required to stabilise the foodstuff based on the most resistant enzyme or microorganism present — the so-called 'D-value'.

Other elements which characterise the quality of food, including flavours, colours and vitamins, also have their own D-values. It is often the case that using the HTST method will best preserve the quality of the foodstuff, but this is not true in all cases.

## Viscosity

Viscosity is a measure of texture, which is itself one of the key quality characteristics of food and drink. It is a measure of a substance's resistance to motion under an applied force based on the amount of force required to remove one layer in relation to another (shear stress) and the change in speed of the layers relative to each other (the shear rate). It is measured in units called centipoise (cP), with one cP being equal to 1 mPa·s<sup>-1</sup> (millipascal per second).

Most fluids are classified as being either Newtonian or non-Newtonian according to the way that their viscosity changes

“ There are various different types of pasteurisation based on different combinations of heat and time.

”

due to shear stress and temperature. Newtonian fluids have the same viscosity irrespective of changes in temperature or shear stress; the most common example of this is water. Non-Newtonian fluids (which are further divided into five categories) have viscosities which fluctuate depending on the shear rate applied.

As viscosity is a key part of the texture of food and drink, processing operations should not have an adverse effect on it. Factors such as pumping, heating, cooling and passing through pipework all have the potential to affect viscosity, with the exact effects depending both on the liquid itself and the way it is handled.

Whatever foodstuff you are looking to heat or cool, understanding its viscosity properties is the first step to specifying a

### Pizza sauce problems

HRS Heat Exchangers was contacted by an international customer that was experiencing just such a problem. One of its products is a pizza sauce (a non-Newtonian fluid) for a popular restaurant chain. After cooking, the sauce was pumped through a multitube heat exchanger to cool it. However, the system pressure was so great that the generated shear stress on the sauce permanently changed its viscosity, making it thinner than it should be. In the worst case, the sauce was so thin that that it would not stay on the pizza base when used in the restaurants.

The original unit passed the sauce through a series of ½” and 1” tubes which generated high pressure. Replacing it with an HRS Unicus model heat exchanger using seven 3” tubes resolved the pressure issues, while the Unicus unit’s oscillating cleaning system is much gentler than a rotary scraped surface heat exchanger, further helping to maintain the quality of the pizza sauce.

system which will not result in adverse effects on the quality of your product. 

HRS Heat Exchangers Australia New Zealand  
[www.hrs-heatexchangers.com](http://www.hrs-heatexchangers.com)

## Saving energy made easy.

Minimising carbon footprint in pharma production has never been easier: A tube valve body is an innovative energy saver. It outperforms forged bodies by far. With less weight, it heats up and cools down much faster – saving you steam, time and energy in CIP and SIP processes. Imagine that saving multiplied by every single diaphragm valve in your plant.

Tube Valve Bodies –  
for more efficient processes

**We make ideas flow.**  
[www.burkert.com.au](http://www.burkert.com.au)



## Clarifier improves productivity for brewer

Italian brewer Brewfist had some clear processing goals when it looked to expand its brewhouse near Milan. These included ensuring that oxygen pick-up between the end of the fermentation process and bottle filling was no greater than 30 ppb, reducing process time and ensuring consistent quality without making the beer too 'yeasty'.

To assist Brewfist in meeting its production goals, a Seital clarifier with a hermetic mechanical seal designed to minimise the risk of oxidation was utilised. Hydraulic seal machines had previously been tested but did not meet Brewfist's requirements to limit oxygen pick-up. The Seital technology went beyond original requirements and expectations, producing oxygen pick-up of less than 10 ppb. This good performance resulted in high levels of consistency in terms of product clarity and lower yeast content.

SPX Flow Seital clarifiers use vertical disk stack centrifuge technology. Alongside high-quality product output, the efficiency with which these units operate meant that production time for fermentation at Brewfist could be reduced from 16 to 11 days and maturation time from 6 weeks to 3-4 weeks. This significant improvement in productivity meant that annual capacity could be increased to meet growing market demands without investment in additional tanks.

Seital centrifuges are further designed with highly efficient gear or belt drive transmissions, continuous vibration monitoring and automatic solids discharge to offer excellent reliability with long maintenance intervals. Precise control and adjustment of the machine is provided through an intuitive operator interface to ensure the process is providing exactly the right product characteristics.



Pietro di Pilato, one of the owners of the Brewfist company, commented, "We are very satisfied with the Seital clarifier. It is very user-friendly and I like the taste of the beer after it has gone through the centrifuge. The machine has worked for 750 hours without requiring maintenance, which provides low service and maintenance costs."

Seital separation and clarification equipment is designed to maintain hygienic conditions and offer gentle processing to ensure favourable product characteristics are preserved and consistent, reliable production is achieved. Machines offer high reliability and are supported by a range of remote monitoring services to help ensure maintenance costs, and risks to production time due to unexpected problems are minimised.

SPX Flow Inc  
www.spxflow.com/au

## Rheon Encrusting machines

*imagination your only limitation*

Rheon products abound in meat & poultry, snack & health, bakery products such as cookies & bread dough's, cheese, seafood, confectionary, pet food & even ice cream treats.

**Continuous co-extrusion-** eg: sausage rolls, fruit bars and apple strudel.  
**Short or long log extrusion-** eg: croquettes & hot dogs.  
**Round deposits up to 300grams-** eg: bread pockets, filled meat & poultry meals, filled doughnuts.

Ease of operation with a simple control panel from which machine operation is controlled at the press of a button. The panel also has 99 memories for calling up your products running specifications.

Low pressure feeding to handle materials gently & avoid fragile particulate breakdown in the casing and/or filling - baked beans or vegetables into meat or potato casing, strawberries & cherries travel through the machine with minimal damage.

Options allow solid centres or a second filling, open topped products, mosaic & shaped extrusions.

Stainless steel construction and fully hose-able for easy & sanitary cleaning.

Single, double and multi-head versions available. Test kitchen facilities available with development assistance.

FROM - **SYMETEC**



Phone: (61 2) 9939-4900 Fax: (61 2) 9939-4911  
 E-mail: [ssyme@symetec.com](mailto:ssyme@symetec.com)  
 PO Box 426, Brookvale NSW 2100  
 C22/148 Old Pittwater Rd, Brookvale NSW 2100

Visit our web site at [www.symetec.com](http://www.symetec.com)



## Hybrid safety block I/O module

The Turck TBPN safety block I/O module combines both standard and safety I/Os in a single device. The IP67 hybrid modules can be adapted to the specific signal requirements in the machine and, in doing so, help users to save valuable space and reduce overall system costs of their machines.

On the safety side of the PROFInet/PROFI-safe module, the user has two safety inputs for connecting different safety sensors. Two additional safety channels can be used either as safety inputs or outputs. The module also offers two channels of internal safety outputs that can be used to remove power to the universal discrete I/O ports as well as to one of the IO-Link ports on the standard side of the block.

For the standard side of the PROFInet/PROFI-safe module, four universal discrete I/O ports are available for connecting general-purpose signals and can switch up to 2 A. Two of these ports can also be configured as IO-Link masters. In combination with Turck's I/O hubs, TBIL-M1-16DXP, users can connect up to 32 additional discrete I/O points to the module.

Both the standard channels as well as an IO-Link channel can be disconnected for safety-related applications, considerably simplifying the wiring of auxiliary drives and valve blocks. The unit has an extended operating temperature range of -40 to +70°C. The IP65/IP67/IP69K protection types allow use in the most demanding environments.

**Turck Australia Pty Ltd**

[www.turck.com.au](http://www.turck.com.au)



## Machinery health analyser for hazardous environments

Emerson Process Management's CSI 2140 Machinery Health Analyser has received ATEX and IECEx, Zone 2 certification, enabling the portable vibration analyser to be used in hazardous environments. The analyser collects all of the data required to assess a machine's condition in the shortest possible time, limiting the time spent by the user in hazardous environments.

The machine analyser provides an early indication of bearing and gearbox defects before they can lead to machine outages. Its PeakVue signal processing methodology provides a simple, reliable indication of equipment health.

**Emerson Process Management Aust P/L**

[www.emersonprocess.com.au](http://www.emersonprocess.com.au)

# Forming and Portioning with a difference

The Formatic range of machines will form and portion products including meats, chicken, fish, cheese and cookie dough's into a variety of shapes. If you are looking for a forming machine which is easy to operate and clean, involves minimal pressure and mixing of your product, and has low maintenance, then look no further -

- Efficient and consistent food portioning.
- Easy adjustment of form thickness for product weight control.
- Models and drums to produce from 1200 to 24,000 forms per hour.
- Auto paper interleaving available to place paper under each form such as beef burgers.
- Auto-wire cleaning available to ensure smooth clean cut of form from the drum under high speed operation.
- Custom manufactured form drums to your design requirements - schnitzel, star, wedge, chevap, round, square, rectangle - almost anything.
- World standard safety features.
- Foot pedal operation option.
- A.Q.I.S. approved.
- Auto stacking / auto-traying / auto-indexing - all available.
- Matching 200mm batter, crumb and fry lines also available.

Benchtop models to suit small and cottage industry all the way through to medium and large scale production plants. Low entry-level pricing.

Visit our web site at [www.symetec.com](http://www.symetec.com)

Most models under \$20K including forming drum

**SYMETEC**

Phone: (61 2) 9939-4900 Fax: (61 2) 9939-4911  
E-mail: [ssyme@symetec.com](mailto:ssyme@symetec.com)  
PO Box 426, Brookvale NSW 2100  
C22/148 Old Pittwater Rd, Brookvale NSW 2100

## High-volume drum former

GEA's 1000 mm MaxiFormer rotary drum former is designed for high-volume production of natural-looking chicken nuggets, popcorn, inner fillet/tender and steaks. Able to produce products with good shape retention and weight accuracy, the former is suitable for continuous operation in 24 h shifts with up to 40 h runs.

Its rotational forming technology comprises a product-feeding device that fills the cavities in the drum. The drum features permanently fixed inserts with a porous material that enables product release (knockout) to be carried out using only air. After knockout, a conveyor transfers the formed products to downstream equipment.

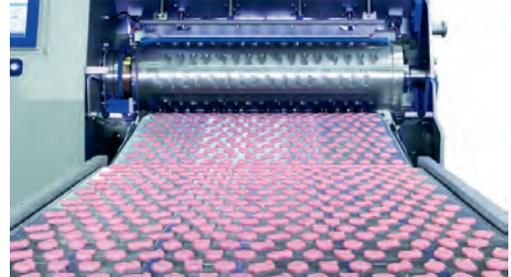
Direct loading to the 1000 mm-wide line results in an optimal belt load and prevents 'doubles' occurring further down the line. The capacity is up to 7500 kg of formed product (with breaded nuggets).

The former applies low pressure to the meat, which results in a consistent, high-quality formed product. The low pressure on the meat helps reduce product waste by reducing leakage (smearing). Use of a compressed air pulse for knockout, without using water, ensures cleaner and quieter forming and lowers operating costs.

The machine has a maximum belt speed of 30 m/min and a maximum drum speed of 34 rpm (32 m/min). It operates at up to 340 strokes/min and is available in 600 and 1000 mm-wide executions. Changeover of the drum is semiautomated.

**GEA Australia**

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



## BRING PORTIONING TO A NEW LEVEL

The new I-Cut 130 PortionCutter is the ideal machine for high-value portioning of red meat.

The machine's new vision system together with numerous advanced cutting patterns and software features ensure superior portioning accuracy and maximum return on investment.

Contact: Andrew Voke +61 407 736 729  
[marel.com/oceania](http://marel.com/oceania)

ADVANCING  
FOOD PROCESSING

**marel**  
MEAT

## Remote data monitoring

SmartLink is Atlas Copco's flexible solution for data monitoring that is easy to install and customise and user-friendly. The system enables relevant data about central compressed air and vacuum systems and individual machines to be delivered to a mobile phone, smartphone or PC.

Whenever the user has access to the internet, it is possible to display the information needed; from machine alarms and faults to visualised representations of demand and load for complete site vacuum installations. This allows users to respond quickly to changing circumstances, planning service calls efficiently and minimising production losses.

The system features: a web portal with event overview of the last 30 days, access to service data and monthly status report by email; logging + download service data for the last 30 days in Excel, Word or PDF; requirement of machine-related services (service, spare parts) directly via web portal; SMS/email notification for service, failures and warnings; online trend graph: status display.

**Atlas Copco Compressors Australia**

[www.atlascopco.com.au](http://www.atlascopco.com.au)



## Spray-drying atomiser nozzles

Manufacturers using spray drying as part of their process appreciate the substantial, ongoing costs of replacement spray-drying nozzles.

Until recently, the only source of replacements was the original equipment supplier. Now there is an alternative option for readily available, high-quality spray-drying atomiser nozzles.

Tecpro Australia has been appointed the Australian and New Zealand distributor for RACA International, a Dutch manufacturer of high-quality spray-drying atomiser nozzles.

Compatible with most dryers, the atomising nozzle's orifice, whirl chamber and top plate are available in tungsten carbide to avoid rapid wear and performance degradation. The body of the nozzle is made from AISI 316 stainless steel.

**Tecpro Australia**

[www.tecpro.com.au](http://www.tecpro.com.au)

# WACKER

CREATING TOMORROW'S SOLUTIONS

HTEssence®

## DIVE INTO A NEW DIMENSION OF PURITY

An innovative leap forward: HTEssence®, the first nature-identical hydroxytyrosol, offers a lot of advantages. Our high-quality antioxidant gives you a defined content, with almost 100 % purity and security of supply for your products. Hydroxytyrosol is a multi-effective antioxidant suitable for cardiovascular therapeutics with benefits for the immune system, bones and colon. This makes it an attractive compound for various anti-aging products. For further information please visit: [www.wacker.com/htessence](http://www.wacker.com/htessence)

Wacker Chemicals Australia Pty. Ltd.  
Tel. +61 3 9541 8900,  
[info.biosolutions@wacker.com](mailto:info.biosolutions@wacker.com)



## SCADA platform update

Siemens has launched the SIMATIC WinCC SCADA V7.4, which focuses on greater efficiency and openness. Suitable for the food and beverage,

water and wastewater and general manufacturing industries, the platform enables access of data to facilitate informed and quicker decision-making. The platform helps users in these industries access control systems in a robust, widely accessible and secure fashion.

The WebUX option, for web-based operator control and monitoring, uses widely available HTML5-compatible smart devices and has been considerably extended in functionality. For example, WebUX now supports all important controls, such as alarming and gauges, and enables objects to be made more dynamic by means of VB script.

The controller channel has been extended to allow up to 128 S7-1500 controllers per server. In addition, a standard OPC UA client has been integrated to exchange data with third-party systems. For the exchange of data (iDoc) with MES (manufacturing execution system) and SAP systems, the WinCC IndustrialDataBridge option has been extended to include an XML file-based interface.

Various functional expansions increase engineering efficiency. For example, drag and drop between the Configuration Studio and Graphics Designer is possible, in addition to extended search and replace functions. Bulk data can be processed by means of a VBA (Visual Basic for Applications) interface. At runtime, trend and bar-chart controls have been expanded to include intuitive multitouch gesture control, such as zooming and panning.

Windows 10 Professional and Enterprise are now supported operating systems.

**Siemens Ltd**

[www.siemens.com.au](http://www.siemens.com.au)

## Dairy processing without by-products

Arla Foods Ingredients has developed a milk protein-based solution that enables dairies to utilise 100% of their milk in the manufacturing process — with zero by-products or waste.

Nutrillac HiYield can be used to create a range of dairy products that traditionally generate acid whey and permeate during production, including Greek yoghurt, cream cheese, feta, mascarpone, ricotta, quark and skyr.

Yields for these products are usually 25–50% of the milk used. In the case of Greek yoghurt, for example, in traditional processes only 33% of the milk ends up in the finished product: the remaining two-thirds is acid whey. However, when using HiYield, 100% of the milk is used in the finished product, with no acid whey generated, according to the company.

HiYield is a flexible solution that requires little or no adjustment to existing production lines for common dairy products such as stirred yoghurt and cream cheese, because it eliminates the need for separation and filtration equipment. It is therefore suitable for dairy companies seeking to enter new and emerging growth categories without investing in new machinery.

**Arla Foods Ingredients**

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

HVAC  
Dynapar Veeder-Root Eagle Signal Line Seiki Keyence Maple Greystone Novotechnik TWK AECO  
PLCS  
Time Count Rate Flow  
Encoders HMI's Controllers  
ph: 1 300 553 500 enhance your sensors VEEDERLINE [www.veederline.com.au](http://www.veederline.com.au)

## Control & Power Switches

Extensive Range of  
Stainless Steel &  
Plastic Enclosures



**Kraus & Naimer** Pty Ltd  
BLUE LINE SWITCHGEAR



[www.krausnaimer.com.au](http://www.krausnaimer.com.au)

P: 1800 567 948 F: 02 9797 0092

E: [salesaus@krausnaimer.com](mailto:salesaus@krausnaimer.com)

Linked with an Australian Wide Distribution Network

# Maintaining large HACCP plans cost-effectively

Hazard analysis and critical control point (HACCP) plans in complex organisations can contain hundreds of steps and associated risk assessments. Reviewing and keeping this information up to date is a huge and time-consuming task, often with multiple staff members involved. The addition of just one step can mean hours of updating documents.

Originally developed by NASA as a means of managing very complex processes for its space program, HACCP plans quickly morphed into simple paper-based documents for controlling food safety hazards. Today, though, they are employed to manage a variety of hazard groups: quality and/or identity preservation (eg, US, EU, organic, halal, kosher) in addition to food safety. Continual auditing by federal, state and overseas authorities and by their customers means many and continuous changes to HACCP plans for many companies.

In Australia and New Zealand, many large export meat and food processing companies already use InformationLeader for their data management, but this can become an even more powerful tool if users can manage their HACCP plans within the system. InformationLeader is an information management solution which allows organisations to electronically capture, analyse and centrally manage traditionally paper-based information without having to develop all new procedures.

The automatic coding, numbering and renumbering abilities of flowchart nodes is the time-saving feature: add a new step and the existing steps are renumbered, remove a step and the remaining steps are renumbered. Changes are automatically carried through to the Hazard Analysis Table and HACCP Audit Table, negating the need to do it manually.

A drag-and-drop flow chart is built within the HACCP Plan template. This feature creates flow charts directly in InformationLeader. This negates the need for a separate package or even Excel and Word to produce the flow chart. Linkage

with other parts of the template means a change made at this level flows through directly.

In addition to the ease of making changes, the template design has removed the need to print out the document in order to use the information for reviews or audits. The flow chart has the potential to act as a portal for audits. Clicking directly to monitoring and verification data is possible because of links to documents and records within or even outside InformationLeader. Use on portable devices is also possible. The whole plan can be taken to the workstation without having to print out a document.

User access is controlled through permissions set up within the system. Permissions to view the HACCP plan or generate reports are controlled. Plans are version-controlled. Users can still view the 'approved' version while the plan is being updated.

While the focus is on removing the need for printing, the plan or parts of it can be presented in the format readers usually see. The standard reporting module makes this possible. An advantage of the tailoring ability with reporting is that specific reports can be supplied for specific users, eg, HACCP Audit Table with only Food Safety or HACCP Audit Table for Food Safety and Quality.

All changes are fully traceable and electronic internal or external approval requirements can be added. 

Theta Technologies Pty Ltd  
www.thetatechnologies.com.au

## Chinese dairy giant partners with GEA for state-of-the-art infant formula plant in NZ



Yashili is one of the 'big three' producers of infant milk formula for the domestic market in China. A longstanding importer of New Zealand milk powder, the company has recently completed a \$200 million, 30,000 m<sup>2</sup> manufacturing plant in Pokeno, 50 km south of Auckland.

With a production capacity of over 50,000 tons/year, the plant will supply the rapidly growing Chinese market and is a showcase facility that places special focus on innovation and on the hygienic design of the process plant and buildings.

GEA was chosen as the main process contractor, providing all the key elements: from milk and ingredients reception, to powder production, to final packing into 25 kg bags.

### Process overview

- Milk is received at the Pokeno site and pre-treated. Ingredients are added using high shear mixing under vacuum. Vegetable oils, dry dairy powders, carbohydrates, vitamins and minerals can then be added directly to fresh milk. The resulting formulations are cooled in batches.
- The batches are further concentrated by removal of water under vacuum, using GEA tubular falling film evaporators.
- The milk concentrate from the evaporators is spray-dried in a GEA MSD dryer to produce a dry powder.
- GEA Avapac technology is used to pack the powder into 25 kg bags.

### Innovation

The plant includes a number of innovative technologies designed to enhance product quality and consistency, reduce noise pollution and minimise the use of water and energy:

- Operations on 24-hour basis. GEA has designed the plant with multiple feed lines and duplicate up-stream systems (such as for evaporation) to allow continuous, 24-hour operations of the dryer. This facility increases output, helps ensure product consistency and avoids product quality problems associated with start-up and shutdown procedures.
  - Built-in flexibility. As well as making infant formula from liquid milk, the Yashili plant can reconstitute milk powders for introduction as ingredients. This allows greater product flexibility and more accurate management of the milk supply.
  - Inlet-air dehumidification. The GEA dryer uses dehumidified air and is one of the first spray dryers in New Zealand to benefit from this feature. By dehumidifying the inlet air it is possible to compensate for changes in humidity throughout the day or year, thereby optimising dryer efficiency and avoiding upsets in the drying process. It also ensures a greater consistency in the properties of the final powder.
  - Water recovery. The water treatment system uses reverse osmosis to process water evaporated from the milk, which converts it into high-quality water for re-use within the plant. This reduces water consumption and minimises disposal costs.
  - Exhaust heat recovery. A variety of best-in-class energy recovery techniques is used to recover waste heat and return it to the process. The high dryer-exhaust temperatures associated with the production of infant formula makes heat recovery both practical and cost-effective.
  - Reduced noise. Special care has been taken to reduce noise from the plant, owing to its location near residential areas and its 24-hour operation. The building has been designed to contain noise, including the attenuation of noise at ventilation and process exhaust openings. Equipment is also strategically selected and located to minimise overall noise levels from the site.
  - Advanced process control. Legislators, retailers and insurers are placing increasingly stringent demands on the traceability of food products: in particular, food for infants and the newborn. To meet these demands, GEA has included modules from its OTAS software suite for higher-level supervisory control of the Yashili plant. These modules ensure transparency in the production sequence, effective use of resources and high product quality. The GEA OTAS Track & Trace module allows Yashili full and transparent traceability of raw material and ingredient inputs, throughout the process and into the final product.
- In addition to process innovations, GEA took on responsibility for all process buildings. This took place in conjunction with its partners Ebert Construction Ltd for the building work and Silvester Clark Ltd for building design. This partnership ensured high-level optimisation of building space to fully match process needs.

GEA Group  
[www.geagroup.com.au](http://www.geagroup.com.au)



### Operating device for SMARTPAT sensors

SMARTMAC 200 W is a 2-wire, loop-powered operating device with HART 7 communication to Krohne's SMARTPAT series process analysis

sensors. It is suitable for all industries that use SMARTPAT sensors or accessories, including the chemical, petrochemical, pharmaceutical and food and beverage sectors, as well as power plants, semiconductor and water/wastewater applications.

SMARTPAT is a series of process analytical sensors with integrated transmitter technology: each sensor is directly connected to the process control system via 4–20 mA/HART without the use of an external transmitter. Nevertheless, there is still a demand for a convenient operating device on-site. Therefore, SMARTMAC 200 W was developed as an optional 2-wire, loop-powered operating device.

The product enables SMARTPAT sensors to be read, calibrated and configured online at the measuring point. It features HART 7 communication and shows clear and configurable diagnostics according to NAMUR NE 107. With the replacement function, the connected sensor can easily be exchanged as all sensor settings can be copied for the new sensor, including 4–20 mA parameters and TAG identification.

The device features English, German, French, Spanish and Italian as operating languages. The die-cast aluminium housing (identical to IFC 100 W and MAC 100 W signal converters) offers ingress protection rating IP66/IP67.

**KROHNE Australia Pty Ltd**  
[www.krohne.com.au](http://www.krohne.com.au)

### Stainless steel panel PC

The AEx-P526 Series ATEX EN 60079-15 Certified Stainless Steel Panel PC is designed for Group 1 Zone 2 hazardous areas that may be exposed to gases or vapours.

The product is totally sealed to IP65 specifications on all sides, making it suitable for use in hose-down environments. All external I/O — including the DC power input, serial, ethernet and USB ports — uses M12 waterproof sealed connectors.

The series combines an embedded PC and a 15" 400 cd/m<sup>2</sup> LCD in a thin fanless stainless steel enclosure measuring 399 x 324 x 63 mm. It uses an Intel Atom D2550 1.8 GHz processor and supports up to 4 GB of 800 MHz DDR3 memory.

**Interworld Electronics and Computer Industries**  
[www.ieci.com.au](http://www.ieci.com.au)

## World's Safest Food Grade Brushware



Ultra Safe Technology

- ✓ Outstanding filament security
- ✓ Unique brush head pattern
- ✓ Ultra hygienic design



Available in 8 colours



#### SALES ENQUIRIES

phone (03) 9699 8999  
 email [sales@wrldwells.com](mailto:sales@wrldwells.com)  
 visit [wrldwells.com](http://wrldwells.com)

**CALL NOW FOR A FREE DEMO**

## IMPROVE WORKPLACE HYGIENE & SAFETY

Implement Wells 5S Hygiene System as part of your continuous improvement program and improve productivity, prevent cross contamination and maximise compliance.



#### CUSTOM SHADOW BOARDS

Available in a range of configurations & sizes. Printed directly onto 10mm PVC board. Hygienic, washable, durable. Designed with you:

- ✓ Company Logo
- ✓ Area Colours
- ✓ Location Name
- ✓ Standards

COLOURS: +1 +2 +3 +4 +5 +6 +7 +8 +9



#### BOOK A SITE SURVEY

phone (03) 9699 8999  
 email [sales@wrldwells.com](mailto:sales@wrldwells.com)  
 visit [wrldwells.com](http://wrldwells.com)



#### VISIT OUR STAND 2012

11-13 October 2016, ASB Showgrounds  
 Auckland, New Zealand



### Stainless steel flat fan blowing nozzles

Tecpro Australia has released a Flat Fan Blowing Nozzle in 316L stainless steel that is suitable for applications requiring strong impact airflows.

The nozzles use compressed air which is blown through 16 orifices to produce a uniform spray of strong impact air jets with low noise. The nozzles provide constant, streamlined airflows without turbulence. When mounted side by side, they provide a highly effective air curtain for conveyor belts.

The 316L stainless steel nozzle is resistant to corrosive forces in situations where caustic chemical cleaning is required and is suitable for use in hygienic applications. As a result, they are well suited for food, beverage and pharmaceutical manufacturing.

The air blowing nozzles comply with OSHA Regulations.

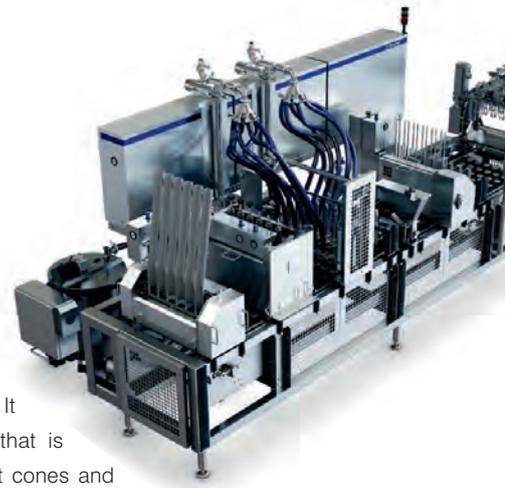
**Tecpro Australia**  
[www.tecpro.com.au](http://www.tecpro.com.au)

### Ice-cream filler

The Tetra Pak Ice Cream Filler A3 produces up to 18,000 ice-cream cones/h. It features a cone dispenser that is capable of handling different cones and cups, an easy-to-operate chocolate sprayer and a precise lid dispenser, which are also available individually for users who want to upgrade their existing ice-cream filling lines.

The product's features help manufacturers boost efficiency by reducing waste, minimising stops and increasing overall speed while ensuring product quality. Furthermore, the modular design of the machine offers production flexibility, with simple set-up and easy equipment changeovers. This allows users to switch smoothly between different cone sizes or cups, as well as ice-cream flavours, in just a few minutes.

**Tetra Pak Marketing Pty Ltd**  
[www.tetrapak.com/au](http://www.tetrapak.com/au)



# BACKSAVER

Tel no: +61 (02) 9969 0370  
 Mike Jackson: [jacko@globalms.com.au](mailto:jacko@globalms.com.au)



See the VIDEO @

[www.backsaver.com.au](http://www.backsaver.com.au)



## Contra shear upgrade

Euro Pumps' Contra Shear CIP upgrades are a plug-and-play upgrade to an existing Contra Shear, increasing its ability to process liquid waste and lowers water treatment and wastewater disposal costs.

The upgrades have enabled systems to achieve 90–95% reductions in water use and almost a complete elimination of manual spot cleaning, according to the company. The module arrives on two shipping pallets with all necessary hardware supplied for the user to connect water and power.

Flexible enough to bolt directly onto most units, a range of pumps and other options are available.

Including reclaimed water or up to 65°C — suitable for fattier products or colder climates — the systems can be used for abattoirs, large-scale food processing, commercial seedlings and nurseries, commercial bakeries, dairies and industrial water treatment plants.

**Euro Pumps Pty Ltd**

[www.europumps.com.au](http://www.europumps.com.au)



## Carcass chilling spray system

Spraying Systems has developed the AutoJet carcass chilling spray system to offset evaporative weight loss during the carcass cooling process by using a range of spray nozzles. The system aims to reduce the shrinkage to as close to zero as possible by monitoring the timing and the amount of water sprayed between cycles. Users have reported total loss of carcass weight of 0.5% or less.

Other system features and benefits include savings on energy and refrigeration expenses, a reduction in floor-cleaning time, control of water pressure and temperature, and monitoring water usage for each spray cycle.

**Spraying Systems Co Pty Ltd**

[www.spray.com.au](http://www.spray.com.au)

INNOVATION



“Installation in record time – for optimal performance in your plant.”



### New from VEGA: the optimised VEGAFLEX Series 80 TDR sensors.

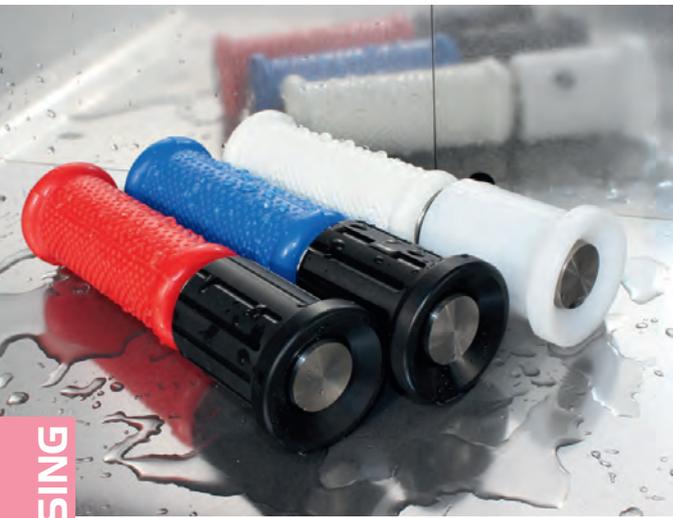
The all-new product series VEGAFLEX 80 offers a variety of useful functions. Its simple adjustment concept guarantees even greater reliability for level and interface measurement. The instruments are optimised for all applications in liquids and solids. New versions for food and pharmaceutical production and for high-pressure and high-temperature applications round out the series.

[www.vega.com/au/innovation.htm](http://www.vega.com/au/innovation.htm)

Phone: 1800 817 135

Looking Forward

VEGA



## Colour-coded hose nozzles

Tecpro Australia has released its range of colour-coded hose nozzles. The heavy-duty hose nozzles will fit ½", ¾" and 1" hoses and are suitable for any high-volume washdown application.

Designed and manufactured in Europe, the blue and red hose nozzles allow workers to easily distinguish between hot vs cold water hoses. As a result, workers can effortlessly identify which hose is the most appropriate for the job while alerting them to be extra vigilant when using hot water.

The red and blue hose nozzles are available in both brass and 316L stainless steel. The stainless steel model is suitable for specialised industries where hygiene is critical — such as food, beverage and pharmaceutical industries.

Some companies associate the colour white with cleaning equipment, so Tecpro also supplies a heavy-duty white rubber version of the hose nozzle which has a 316L stainless steel body.

The hose nozzles are built to last and include a replaceable EPDM rubber cover. If wear occurs, the user can simply purchase another cover rather than another nozzle. In addition, the EPDM cover is designed to minimise heat transfer up to 80°C, making it safe for staff to use.

The inline nozzles are said to be less likely to become caught on machinery compared with using the more commonly available washdown guns. The twist head is also more comfortable to use than a hose trigger. The simple twist operation provides a high-pressure, conical spread of water at up to 16 bar (232 psi) of water pressure.

**Tecpro Australia**

[www.tecpro.com.au](http://www.tecpro.com.au)



PharmEquip supplies quality sanitary and industrial hose assemblies in both PTFE and Silicone material, as well as stocking a broad range of stainless steel fittings, gaskets and silicone tubing



Factory 2 & 8, 756 Burwood Hwy  
Ferntree Gully, Vic 3156 Australia  
p: (03) 9758 5591  
e: [admin@pharmequip.com.au](mailto:admin@pharmequip.com.au)  
[www.sterileprocesscomponents.com](http://www.sterileprocesscomponents.com)



Turning compliance into continuous improvement for over 15 years.

InformationLeader's Plans Module can fully manage your HACCP Plan. It is a simple process to customise it for VACCP (Vulnerability Assessment & Critical Control Point).

**UTILISE INBUILT FLOW CHARTING TOOL**  
**ADJUST FORMS & REPORTS TO SUIT YOU**  
**ADD IN YOUR RISK CALCULATOR**

Join our growing list of success stories and become an InformationLeader today

[sales@thetatechnologies.com.au](mailto:sales@thetatechnologies.com.au)  
+64 7 3275 0800  
[www.informationleader.com.au/vaccp/](http://www.informationleader.com.au/vaccp/)

## Ultibend lifts productivity with all-electric tube benders

Ultibend Industries, a manufacturer of stainless steel tube fittings for food and beverage processing systems, has boosted its productivity with two all-electric tube bending machines that automate the bending of tube fitting shapes such as elbows and U-bends, in sizes from ½ to 4" in diameter.

Ultibend's original hydraulically powered tube bending machines were the heart of their business, but offered only a very basic level of machine and operator control. The company sought to replace them with more flexible, all-electric machines using servomotor-controlled bending.

Unison was selected as the supplier of the customised solution, which has given Ultibend the manufacturing platform to support substantial future growth, including into the USA and other new export markets.

Based in Wellington, New Zealand, Ultibend is known for the high functional quality of its tube fittings, which means that bends are highly uniform. The new machines combine the existing manufacturing techniques with the enhanced productivity of all-electric machine architecture.



The Unison machines speed the bending due to the inherently greater control of motion that's possible inside the software-controlled, all-electric machine architecture. The software gearbox is able to control and coordinate several axes simultaneously, avoiding the delays of a more mechanical machine such as the latency in response of a slave axis.

Unison Ltd  
www.unisonltd.com



Biotechnic supplies radially-crimped sanitary hose assemblies to the food and beverage sectors. We are able to supply custom hose assemblies from 3/4 inch through to 4 inch using FDA compliant hoses.

### TUDERTECHNICA

We have recently been appointed as the exclusive Australian distributor for Tudertecnica hose from Italy for their Food and Pharma range of hoses.

Email us to be included on our mail list to receive information on new products in 2016, which will include PTFE and Silicone materials. All recipients will receive an *additional* discount on any quotations.

[sales@biotechnic.com.au](mailto:sales@biotechnic.com.au)

Biotechnic Pty Ltd  
Factory 3/2A Backwell Street  
North Geelong, VIC  
Phone : 0418 525 524  
Email : sales@biotechnic.com.au

**biotechnic**  
0418 -525 524

## Complete Cleaning Solutions



CIP Systems  
CIP Upgrades

Crate Washers  
Tub Washers

Complete Plant  
Systems + CIP

Water Use  
Assessments

Hi Pressure &  
Efficiency Tools

Floor & Drain  
Cleaning

Training &  
Consulting

Parts & Spares

Cutting Board  
Washer

Euro Pumps is Australia's leading manufacturer, supplier and integrator of complete end to end cleaning solutions with typical CIP systems saving up to 200KL per day. With systems in place with small food processors all the way through to multinational exporters Australia wide.

Call Jo Field on 0409 123 850 to find out how much water you can save.

Unit 3 10A Quindus St Beenleigh 4207

Ph 0409 123 850

[www.europumps.com.au](http://www.europumps.com.au)





## Upgraded heat exchangers for viscous products

Teralba Industries has upgraded its range of Dimpleflo Tubular Heat Exchangers for enhanced turbulence within the product tubes. The Dimple profile has been improved to further increase turbulence, resulting in higher efficiency and heat transfer coefficients, especially when heating or cooling viscous or fouling product.

The tube-in-tube design resists blockage, even when processing products such as jams, purees, toffee and pet foods. A further advantage of the profile is that the increased turbulence within the tube wall also self-cleans the heat exchanger, minimising maintenance costs and downtime.

The six o'clock position in the base of each heat exchanger has a clear draining passage, which means the heat exchanger aids the draining of product and heating/cooling media.

The heat exchangers are manufactured from 304 or 316 stainless steel and can be engineered to withstand pressures of up to 25 bar (362 psi) in the product flow path. Where

products have high chloride content or other corrosive ingredients, the heat exchanger can be constructed from corrosion-resistant materials such as duplex stainless steels and titanium.

With sizes ranging from 25 to 200 mm configurations, the heat exchangers can be sized to suit heat transfer applications from 200 to 200,000 kg/h.

**Teralba Industries**

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

## Tank cleaning savings calculator

Gamajet has developed an online tank cleaning savings calculator that estimates potential time and water savings by optimising your tank cleaning process.

Gamajet and Spray Nozzle Engineering's automated tank cleaning solutions are suitable for all industries, from cleaning 80' process vessels with complex mixing systems, to kettles, blenders and totes. Gamajets utilise rotary impingement technology to create full-coverage, high-impact cleaning.

Due to the high level of impact, the Gamajets use less water and take less time to clean than methods such as manual scrubbing. The systems scour tank and tote interiors in a repeatable 360° pattern, ensuring the tank or tote interior is effectively cleaned, to avoid contamination, meet regulatory standards, reach sustainability goals and ensure product quality.

**Spray Nozzle Engineering**

[www.sprayingsolutions.com.au](http://www.sprayingsolutions.com.au)



**Aerofloat**  
Wastewater Treatment Specialists

## DO YOU HAVE A WASTEWATER PROBLEM?

### FIND OUT MORE

[enquiries@aerofloat.com.au](mailto:enquiries@aerofloat.com.au)  
+61 (0)2 9544 1449

Aerofloat's world first DAF Technology:

- Various models available - Flows from 1-100 m<sup>3</sup>/Hr.
- Removes up to **98% suspended solids and grease.**
- Water quality for sewer discharge standards or wash water reuse.



[www.aerofloat.com.au](http://www.aerofloat.com.au)

**+ ALL NEW!** • MBBR (Moving Bed Bio Reactor) technology for **BOD<sub>5</sub> / COD** removal

## Self-cleaning screen saves rendering facility \$100,000 pa

A Queensland meat rendering facility had an ongoing issue involving replacing prefilter cartridges in its reverse osmosis (RO) plant. During periods of high sediment loadings in the feed water supply to the RO plant, the prefilter cartridges were needing to be replaced on a daily basis.

Southland Filtration proposed the installation of a SKAN Autofine AF3-80 automatic self-cleaning screen filter with a 6 µm screen prior to the RO prefilters, which would decrease the dirt load reaching the cartridges. The results were instantaneous.

The cartridge life span has been increased 10 times, delivering huge cost savings in consumable expenditure plus more run time for the RO plant. This has resulted in greater efficiencies in production output.

The rendering plant's site process engineer explained that after the SKAN filter was installed, the cartridge filters now only need replacing every one and a half weeks to a fortnight, rather than daily.

"The outcome has been fantastic, with more uptime on the plant and a payback period of six months. The trial has been so successful we will now be installing an additional 1 µm screen filter to negate the need for the 5 µm cartridge



filters in the RO plant and further reduce the frequency of changing filters."

The installation of the screen has delivered potential cost savings of over \$100,000 per annum to the meat byproducts rendering facility.

*Southland Filtration*  
[www.southlandfiltration.com.au](http://www.southlandfiltration.com.au)



## Heraeus

**UV light is an effective + versatile  
form of disinfection.**

UV disinfection fixtures from Heraeus are designed to limit the spread of molds, bacteria and viruses in food processing environments.

- Ducted air treatment
- Continuous disinfection of conveyors
- UV tunnels + modules for packaging + bottling lines

Phone: 03 9874 7455 Email: [sales.HALA@heraeus.com](mailto:sales.HALA@heraeus.com)

[www.heraeus-noblelight.com/au](http://www.heraeus-noblelight.com/au)

# Foodtech Packtech

Everything food and beverage processors need to see — all under one roof

New Zealand's biennial food and beverage manufacturing, packaging and processing technology trade event, Foodtech Packtech (FTPT), is on track to be the biggest in over a decade. Leading industry suppliers from all over New Zealand and many from overseas will be gathering in Auckland in October to showcase the latest equipment, technologies, services and trends in the food and beverage processing industry.

## Foodtech Packtech at a glance

- 11–13 October 2016
- Tuesday 9 am–6 pm
- Wednesday 9 am–6 pm
- Thursday 9 am–4 pm
- ASB Showgrounds, Auckland
- Registration: [www.foodtechpacktech.co.nz/visitor-information/register](http://www.foodtechpacktech.co.nz/visitor-information/register)

**H**eld at the ASB Showgrounds, Auckland on 11–13 October, Foodtech Packtech (FTPT) covers all facets of food and packaging industry capability. Nearly 200 companies will be there to inspire New Zealand's food and beverage manufacturing, packaging and processing industry.

The 2016 theme 'Adding Value to NZ's Food Chain' will be dominant over the three days through live product demonstrations, special features and a very full schedule of free industry-led education and learning seminars.

"There's a huge pipeline of innovative new products being launched on-site at the show, in some cases Southern Hemisphere firsts," said the organiser, XPO Event Manager Deb Haimes.

When you need new technology or equipment and are looking at ways to make your processes more productive, it pays to compare brands. With one visit to this show you can see all the big names and can really weigh up the benefits of each before you make the big decision.

"There is very strong industry support for Foodtech Packtech 2016," said Deb, "which, I believe, reflects the current industry and economic sentiment. FTPT 2016 is set to showcase many amazing examples of successful high-tech Kiwi food and beverage manufacturing capability.

"It's a great chance to see existing suppliers again and also brings the opportunity of meeting new purveyors and seeing their exciting innovations and cutting-edge new products and technology."

## Seminar program

The overall event seminars, organised in partnership with NZIFST, will bring together leading experts and professionals to share their knowledge, skills and ideas that are critical to the sustainability and growth of the vibrant F&B industry.

## Australian companies head to FTPT too

This year the Australian Packaging and Processing Machinery Association (APPMA) will be exhibiting at Foodtech Packtech



for the first time. The APPMA represents Australia's leading packaging and processing machinery and allied components companies and members include manufacturers, distributors and importers of packaging and processing machinery who are suppliers to industries such as food, beverage, dairy, meat, poultry, seafood, confectionery, bakery, snacks and fresh produce.

24 APPMA member companies will also be exhibiting: A&D Weightec, ABB, Accupack, Confoil, Heat and Control, HMPS, IFM Electronic, Integrated Packaging, JL Lennard, JMP Engineering, KHS, Multivac, Omron, Propac, Reynolds Group, Rhima, Rockwell Automation, Romheld, SICK, SMC Pneumatics, TNA, Tronics, Walls Machinery and Wedderburn.

The APPMA will also be hosting one of the NZIFST seminars alongside Foodtech Packtech 2016 on the 11th of October. The seminar will include a panel of experts who will discuss key trends and topics such as cobots — collaborative robots; Internet of Things 4.0; serialisation and authentication; and total cost of ownership. Panellists will be representing leading companies such as ABB, Heat and Control, Rhima, SICK, Rockwell Automation and A&D.

### Penguins

Penguins? You may ask. *What's New in Food Technology & Manufacturing* has been part of FTPT for the best part of 20

years and we always have a stress ball giveaway. We have had cows, pigs, sheep, chooks, apples, tomatoes... Two years ago we handed out chickens but, to our horror, an innocent chicken was misappropriated by a ruthless exhibitor, forced into a plastic bag and vacuum packed. A representative from D&L Packaging was reputed to say, "We just put the chicken in, suck out the air and seal it. To show how efficient we are at vacuum packing we then cut open the bag, release the chook and then do it all again."

However, this chicken abuse pales into insignificance compared to what happened to our sheep!

This year we have penguins — not because anyone in NZ is processing penguins, just because they are cool. When you visit FTPT make sure you visit us at Stand 2041 to get a penguin of your own.

### Co-locating with FTPT — the Materials Handling & Logistics Expo

The Materials Handling & Logistics Expo (MHL), New Zealand's premier trade event for the materials handling, warehousing and logistics industry, is co-locating with Foodtech Packtech. So you will be able to get two exhibitions in the one trip!

MHL is also free to attend and brings together customers and suppliers from every aspect of material flow management along the supply chain and covers a wide range of industry sectors including: logistics, materials handling, food and beverage, retail, packaging, pharmaceutical, manufacturing, transport, engineering, technology, government, and many more.

It provides industry buyers with the opportunity to view the most up-to-date materials, equipment, services, technology and innovations and discuss their needs with supply professionals.

The natural alignment of MHL with FTPT provides visitors unprecedented face-to-face access to over 250 exhibitors and leading experts to discover the freshest ideas, latest technologies and the newest developments entering their industry. A three-day educational and professional development seminar program along with special features and interactive displays will make MHL a worthwhile addition to FTPT.

### Register now for free entry to FTPT

Entry to the exhibition is FREE to genuine food, beverage and pharmaceutical industry professionals. As a strictly trade-only



Foodtech Packtech floor plan. Don't forget to drop in to stand HL15 to meet the friendly team from What's New in Food Technology and Prepared Food!

event, children and the general public will not be allowed admittance to the expo. Once registered, visitors are allowed to enter the show as many times as they choose.

Overseas visitors attending the show may apply for a business visa. Australian citizens and residents don't usually need a visa to travel to New Zealand, but if you don't meet NZ's character requirements, you'll need to apply for

a visa before travelling. The passport which you hold will determine whether you can apply online or if you need to lodge a paper-based application. Applications need to be made well in advance at the New Zealand Embassy in your country or in some cases can be made online. Register to attend Foodtech Packtech now: [www.foodtechpacktech.co.nz/visitor-information/register](http://www.foodtechpacktech.co.nz/visitor-information/register).



Oxygen Analysers, Relative Humidity Sensors and Meters, Dewpoint Measurement

U.V Absorption  
Conductivity  
pH / ORP Colour

## AMS Instrumentation & Calibration Pty Ltd

### Analytical Process Division

Oxygen Analysers, Thermal Conductivity Analysers, NDIR Analysers, Multigas Analysers, OEM Analysers

Industrial Water Analysers and Liquid Analytical Products (pH, Conductivity, ORP, Dissolved Oxygen, etc)

**Head Office:**  
Unit 20, 51 Kalma Drv  
Boronia VIC 3155

Ph: 03 9017 8225  
Fax: 03 9729 9604

NSW Ph: 02 8197 2825  
WA Ph: 08 6364 0205  
QLD Ph: 07 3333 2825  
SA Ph: 08 7221 2205

[www.ams-ic.com.au](http://www.ams-ic.com.au)  
[sales@ams-ic.com.au](mailto:sales@ams-ic.com.au)

# The Secret To Keeping Electronics Cool!

## NEMA 12 Cabinet Coolers

The NEMA 12 Cabinet Coolers for large heat loads up to 5,600 Btu/hr. are ideal for PLCs, line control cabinets, CCTV cameras, modular control centers, etc.

- Measures 203mm high
- Mounts top, side or bottom
- Enclosure remains dust-tight and oil-tight

## NEMA 4 and 4X Cabinet Coolers

NEMA 4 and 4X Cabinet Coolers for large heat loads up to 5,600 Btu/hr. They are ideal for PLCs and modular controls.

- Enclosure remains dust-tight, oil-tight and splash resistant
- Suitable for wet locations where coolant spray or hose down can occur

## Type 316 Stainless Steel Cabinet Coolers

Type 316 Stainless Steel Cabinet Coolers for NEMA 4X applications are available for heat loads up to 5,600 Btu/hr.

- Resists harsh environments not suitable for Type 303/304
- Ideal for food and chemical processing, pharmaceutical, foundries, heat treating and other corrosive environments

## Mini NEMA 12, 4 and 4X Cabinet Coolers

The mini NEMA 12, 4 and 4X Cabinet Coolers for small heat loads up to 550 Btu/hr. are ideal for control panels, relay boxes, laser housings, electronic scales.

- Measures 127 mm high
- Mounts top, side or bottom
- Enclosure remains dust-tight and oil-tight

## High Temperature Cabinet Coolers

High Temperature Cabinet Coolers for NEMA 12, 4 and 4X applications are available for heat loads in many capacities up to 5,600 Btu/hr.

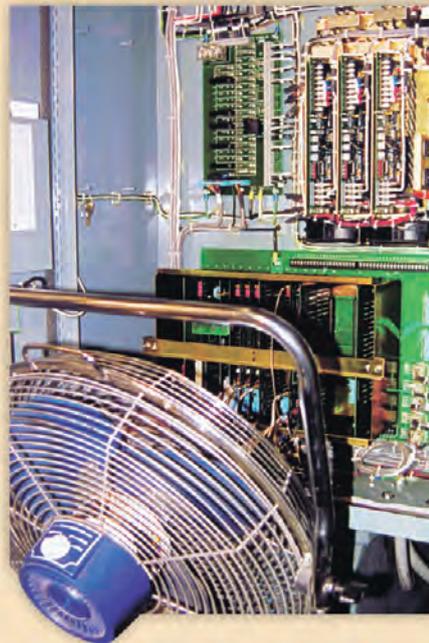
- Suitable for ambients up to 93°C
- Ideal for mounting near ovens, furnaces, and other hot locations

## Non-Hazardous Purge Cabinet Coolers

NHP Cabinet Coolers keep a slight positive pressure on the enclosure to keep dirt from entering through small holes or conduits. For use in non-hazardous locations.

- Uses only 1 SCFM in purge mode
- For heat loads up to 5,600 Btu/hr.
- NEMA 12, 4 and 4X

## A bad choice could cost you thousands!



### Look Familiar?

When hot weather causes the electronics inside a control cabinet to fail, there is a panic to get the machinery up and running again. The operator might choose to simply open the panel door and aim a fan at the circuit boards. In reality, the fan ends up blowing a lot of hot, humid, dirty air at the electronics and the cooling effect is minimal. If the machinery starts functioning again, the likelihood of repeated failure is great since the environment is still hot (and threatens permanent damage to the circuit boards). Worse yet, that open panel door is an OSHA violation that presents a shock hazard to personnel.



### The Real Solution!

Stop electronic downtime with an EXAIR Cabinet Cooler® System! The complete line of low cost Cabinet Cooler Systems are in stock and can ship now. They mount in minutes through an ordinary electrical knockout and have no moving parts to wear out. Thermostat control to minimize compressed air use is available for all models. All Cabinet Coolers are UL Listed to US and Canadian safety standards.



### Watch The Video!



**NEW** CE The only compressed air powered cooler that is CE compliant!

An **INTELLIGENT COMPRESSED AIR** Product



Jeff Hauck, Lasercraft Inc. Cincinnati OH

"It took us three days to get a replacement computer cabinet and we didn't want to risk another heat failure. Fans weren't an option since they would just blow around a lot of hot air. Freon-type air conditioners like those on some of our other machines were a constant maintenance project of their own. We purchased EXAIR's Model 4330 NEMA 12 Cabinet Cooler System since it was easy to install and requires no maintenance."

If you would like to discuss an application, contact:

**Compressed Air Australia Pty Ltd**  
 Phone: 1300 787 688  
 Int'l: +61 8 8983 3999  
 info@caasafety.com.au  
 www.compressedairaustralia.com/cabinet-cooler  
 GPO Box 2792, Darwin, NT 0801, Australia

# Automation reaches cauliflower harvesting

**Machines that harvest vegetables pick everything at once — even unripe heads when harvesting cauliflower. This is why human helpers often perform this tedious job. In the future, a machine being developed by Fraunhofer and industry partners will make automated, selective harvesting possible.**

**H**arvesting cauliflowers is a science unto itself because the white heads are hidden beneath numerous leaves. This means that pickers have to pull back the protective leaves head for head to look at the cauliflower and decide whether it is ripe for harvesting. Pickers comb a field approximately four to five times in intervals of two to three days until the very last head of cauliflower has been harvested. This work is strenuous and backbreaking.

Another challenge for farmers is their need for numerous pickers at once for a short time when harvest season is pending. Finding enough hands for this hard work is often difficult, though. Machines on the other hand would harvest the entire field at once and, since cauliflower heads ripen at different rates, thus even heads that are still too small or unripe.

## A smart harvester

In the future, a machine called VitaPanther will harvest cauliflowers just as selectively as human workers would. It is being developed by researchers at the Fraunhofer Institute for Factory Operation and Automation IFF and their colleagues at ai-solution GmbH together with five other partners: Gottfried Wilhelm Leibniz University Hannover, Steig GmbH, Beutelmann Gemüseanbau, König Sondermaschinenbau GmbH and Inokon GmbH. A prototype of VitaPanther will be finished and tested in 2017.

This machine will benefit farmers in several ways: it will harvest cauliflower heads significantly faster than human pickers and could additionally work at night, too. Another plus is that farmers will be able to dispense with troublesome searches for workers.

## A hyperspectral camera detects ripeness

How can a machine detect the vegetable's ripeness without seeing its 'whiteness', without weighing it, without knowing

its size? These are the questions on which the researchers at the Fraunhofer IFF are working. They are researching and developing the necessary sensor systems along with the software that analyses and pre-processes the data obtained so that the machine receives clear information on whether to harvest or to wait. "We are taking advantage of an effect we discovered in preliminary tests: the leaves of ripe cauliflowers have a different biochemical composition than those covering unripe heads," explained Prof Udo Seiffert, Manager of the Biosystems Engineering Expert Group at the Fraunhofer IFF.

Hyperspectral cameras mounted on the harvester scan the heads of cauliflowers. Whereas a conventional camera only works with visible light and produces a colour picture consisting of red, green and blue tones, a hyperspectral camera scans a defined range of wavelengths beyond human vision and also encompassing infrared and ultraviolet light. Applying a mathematical model, the researchers can determine the biochemical composition of the leaves and thus the ripeness of the cauliflower based on the intensity of the light reflected in the different wavelengths scanned.

The researchers are not analysing the exact biochemical composition of the leaves, however, because the machine is only supposed to receive a yes-no command to harvest. The mathematical model that decodes the camera images into exactly this command is based on algorithms that originated with machine learning. The researchers are using examples to teach it. They 'show' the camera different heads of cauliflower, which are simultaneously being inspected by a human expert. Following such a teaching phase, the system is able to decide autonomously which cauliflower should be harvested or not, even when the heads of cauliflowers are unfamiliar.





### Plasma irradiation improves vegetable harvest

Scientists from Japan have successfully used 'non-thermal air plasma irradiation' to improve the harvest of a crop of salad leaves.

The ability to enhance the growth of crops and maximise their yields could transform food supplies for the future. Exposing seeds to ionising radiation allows scientists to control the growth and development of plants from the early stages through to harvest.

Plasma irradiation is a technique that does not damage the plants but has been shown to increase seed germination rates and overall plant length. Researchers from Kyushu University have demonstrated that the use of non-thermal air plasma irradiation can dramatically improve the harvest of the salad crop *Arabidopsis thaliana*.

The team built a scalable device to generate the non-thermal plasma and placed 20 *A. thaliana* seeds under the device before subjecting them to a three-minute dose of plasma radiation. The seeds were then planted and their growth and proliferation was monitored and compared with a control group.

The researchers found that the germination rate for the plasma seeds was almost a full day faster than the controls. The plasma plants reached maturity at 17.5 days, compared with 22 days for the control group. The seeds produced by the plasma group were larger, with a 39% overall increase in seed number.

The results represent an 11% shorter harvest period and a 56% increase in total seed weight; a significant improvement in crop yield.

The research is featured in *Applied Physics Express*.



Image courtesy of Albert (via pixel.la) under CC0 Public Domain

PROCESSING



... trust in German manufacturing

PH: 1300 652 558

**Now in stock at Barnco!**

DICR®



Up to 560 cuts/min ♥  
Long grid blades, clean cut ♥  
45mm infinitely adjustable length ♥

High output slicing (400/min) ♥  
Precise thickness control (1-32mm) ♥  
Clean cutting down to -4°C ♥  
Visual failure signalling ♥

SLICR®



250 Parramatta Road, Ashfield NSW 2131  
www.barncosales.com.au | sales@barncosales.com.au

find us on...



# Marketing mangoes

**Perfection Fresh Australia has purchased the exclusive sales and marketing rights to the Calypso Mango and has plans to increase consumption of the fruit both domestically and internationally.**

**T**he acquisition, from OneHarvest, will establish Perfection Fresh Australia as one of the country's leading mango marketers, responsible for more than a third of Australian domestic mango industry sales.

The family-owned fresh-produce company has marketed mangoes for more than 30 years with a portfolio that also includes Kensington Pride, Pearl, Keitt and R2E2 mango varieties.

Perfection Fresh Australia Chief Executive Officer Michael Simonetta said it was an exciting acquisition with benefits for our mango growers, retailers and consumers.

"OneHarvest and the Calypso grower network have done an outstanding job establishing the brand and we look forward to continuing to build consumer awareness and increasing product consumption in Australia and abroad," said Simonetta.

"We are thrilled to bring Calypso Mangoes into our family of products and brands and will work closely with the Calypso grower network and supply chain to ensure we deliver a consistently high-quality product with full season availability for the major chain stores and independent retailers.

"We plan to drive sales with tailored and targeted consumer campaigns focusing on the unique attributes of Calypso Mangoes and the health benefits of consuming mangoes.

"Calypso Mangoes are known for their vibrant colour, greater amount of flesh providing more mango and less seed, longer shelf life and delicious flavour.

They are grown in the northern regions of Australia by a dedicated network of growers.

Ten million kilograms of Calypso Mangoes were sold last season with a significant increase expected this season.

Simonetta said while the primary focus was to support the domestic market, the company also planned to significantly increase export sales.

"Exports currently account for 7% of total Calypso Mango sales and we are aiming to double export sales over the next three years," said Simonetta.

"There are massive export opportunities particularly in South-East Asia, the Middle East and the US, and Perfection Fresh Australia is well positioned to capitalise on these growth opportunities.

"In pursuing export growth, we also will explore opportunities to expand Calypso Mangoes internationally, paving the way for the establishment of plantings in other continents.

This will generate cross-seasonal sales opportunities for our Australian growers.

"Mr Simonetta said the acquisition was strongly aligned with Perfection Fresh Australia's commitment to providing consumers with high-quality and great-tasting fresh produce through investment in production, protected cropping, exclusive varieties and fresh value-added processing.

It will add to Perfection Fresh Australia's existing extensive portfolio of exclusive fresh produce varieties including Broccolini, Qukes, Vine Sweet Minicaps, Kumato tomato & Berry Perfection raspberries and blueberries.

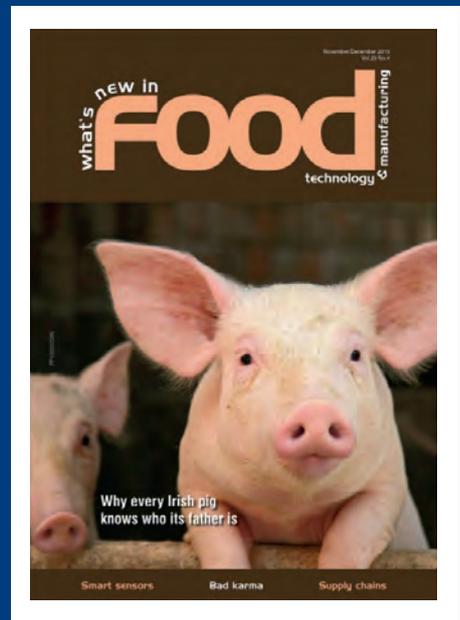
OneHarvest Managing Director Sam Robson said they had sold the Calypso Mango marketing rights to focus on their core business of fresh cut salads and meal solutions.

"We're thrilled Perfection Fresh Australia, with its strong experience in driving unique fresh produce brands like Broccolini and Qukes, will carry on the exciting growth of the Calypso Mango brand and sales," said Robson.

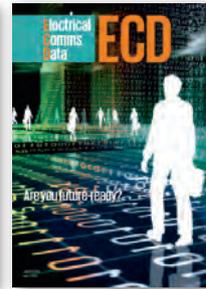
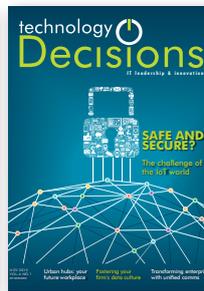
Perfection Fresh Australia will take over the Calypso Mango marketing immediately, ahead of the mango harvest season expected to commence in September. 

# FREE

to industry and business professionals



The magazine you are reading is just one of twelve published by Westwick-Farrow Media. To receive your free subscription (magazine and eNewsletter) go to the link below.



**wfmedia**  
connecting industry

[www.WFMedia.com.au/subscribe](http://www.WFMedia.com.au/subscribe)

# Heat process adds weeks to the shelf life of milk

The shelf life of milk can be extended by several weeks by rapidly heating and cooling it, US researchers have shown.

**B**ruce Applegate, associate professor in the Department of Food Science at Purdue University, and collaborators found that increasing the temperature of milk by 10°C for less than a second eliminates more than 99% of the bacteria left behind after pasteurisation.

"It's an add-on to pasteurisation, but it can add shelf life of up to five, six or seven weeks to cold milk," Applegate said.

In the study, the low-temperature, short-time (LTST) method sprayed tiny droplets of pasteurised milk, which was inoculated with *Lactobacillus* and *Pseudomonas* bacteria, through a heated, pressurised chamber, rapidly raising and lowering their temperatures about 10°C but still below the 70°C threshold needed for pasteurisation. The treatment lowered bacterial levels below detection limits and extended shelf life to up to 63 days.

"With the treatment, you're taking out almost everything," Applegate said. "Whatever does survive is at such a low level that it takes much longer for it to multiply to a point at which it damages the quality of the milk."

Sensory tests compared pasteurised milk with milk that had been pasteurised and run through the LTST process. Panellists did not detect differences in colour, aroma, taste or aftertaste between the products.

Phillip Myer, an assistant professor of animal science at the University of Tennessee and a co-author of the paper, published in the journal *SpringerPlus*, said the process uses the heat already necessary for pasteurisation to rapidly heat milk droplets.

"The process significantly reduces the amount of bacteria present, and it doesn't add any extra energy to the system," Myer said. He said the promise of the technology is that it could reduce waste and allow milk to reach distant locations where transport times using only pasteurisation would mean that milk would have a short shelf life upon arrival.

Applegate said the process could be tested without pasteurisation to determine if it could stand alone as a treatment for eliminating harmful bacteria from milk. 

Westwick-Farrow Media  
A.B.N. 22 152 305 336

[www.wfmedia.com.au](http://www.wfmedia.com.au)

**Head Office**  
Cnr. Fox Valley Road & Kiogle Street,  
(Locked Bag 1289) Wahroonga NSW 2076  
Ph: +61 2 9487 2700 Fax: +61 2 9489 1265

**Editor:** Janette Woodhouse  
[wnift@wfmedia.com.au](mailto:wnift@wfmedia.com.au)

**Assistant Editor:** Melissa Barks

**Publishing Director/MD:** Geoff Hird

**Art Director/Production Manager:** Julie Wright

**Art/Production:** Tanya Barac, Odette Boulton,  
Colleen Sam

**Circulation Manager:** Sue Lavery  
[circulation@wfmedia.com.au](mailto:circulation@wfmedia.com.au)

**Copy Control:** Mitchie Mullins  
[copy@wfmedia.com.au](mailto:copy@wfmedia.com.au)

**Advertising Sales**

**Sales Manager**  
Kerrie Robinson  
Ph: 0400 886 311  
[krobinson@wfmedia.com.au](mailto:krobinson@wfmedia.com.au)

Tania Conroy  
Ph: 0422 066 954  
[tconroy@wfmedia.com.au](mailto:tconroy@wfmedia.com.au)

Germany, Austria, Switzerland - Eisenacher Medien  
Ph: +49 228 249860 [info@eisenacher-medien.de](mailto:info@eisenacher-medien.de)

If you have any queries regarding our privacy policy  
please email [privacy@wfmedia.com.au](mailto:privacy@wfmedia.com.au)

Subscriptions for unregistered readers  
- price on application



September 2015 total CAB audited circulation (Aust + NZ):  
6443 readers (82% personally requested)

Printed and bound by SOS Print + Media  
Print Post Approved PP100007395  
ISSN No. 1039-8414

**NOTICE:**

All material published in this magazine is published in good faith and every care is taken to accurately relay information provided to us. Readers are advised by the publishers to ensure that all necessary safety devices and precautions are installed and safe working procedures adopted before the use of any equipment found or purchased through the information we provide. Further, all performance criteria was provided by the representative company concerned and any dispute should be referred to them. Information indicating that products are made in Australia or New Zealand is supplied by the source company. Westwick-Farrow Pty Ltd does not quantify the amount of local content or the accuracy of the statement made by the source.

# Complete Food Packaging Solutions

## Filling and Packaging

machines:

- Pouches
- Cheese Cutting
- Cheese Wrapping
- Cups
- Bottles
- Cans
- Bag in Box
- Cartons
- Cases
- PET Bottles



44-46 Catalina Drive Tullamarine 3043 Victoria Australia  
Telephone: +61 (03) 9335 1211 Fax: +61 (03) 9335 1331  
Email: [info@khspacific.com.au](mailto:info@khspacific.com.au)

# CONVEY

**FLEXI-DISC™ Tubular Cable Conveyors** gently slide fragile foods and non-foods through smooth stainless steel tubing routed horizontally, vertically or at any angle, over short or long distances, dust-free. Single or multiple inlets and outlets.



# DUMP

**FLEXICON® Manual Dumping Stations** allow dust-free dumping of bulk material from bags and other containers. Automatic reverse-pulse filter cleaning allows continuous, efficient operation. Available with integral bag compactors for total dust containment.



# UNLOAD

**BULK-OUT® Bulk Bag Dischargers** unload free- and non-free-flowing solids from bulk bags automatically. Allows untying, discharging, retying and collapsing of bulk bags—all dust-free. Available with weigh batching controls.



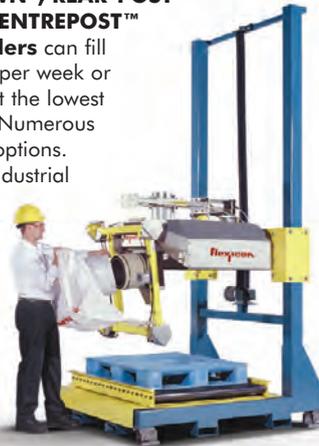
# CONDITION

**BLOCK-BUSTER® Bulk Bag Conditioners** loosen bulk materials that have solidified during storage and shipment. Variable height turntable positions bag for hydraulic rams with contoured conditioning plates to press bag on all sides at all heights.



# FILL

**SWING-DOWN®, REAR-POST and TWIN-CENTREPOST™ Bulk Bag Fillers** can fill one bulk bag per week or 20 per hour at the lowest cost per bag. Numerous performance options. Available to industrial or sanitary standards.



# CONVEY

**FLEXICON® Flexible Screw Conveyors** transport free- and non-free-flowing bulk solid materials from large pellets to sub-micron powders, including products that pack, cake or smear, with no separation of blends, dust-free at low cost. No bearings contact material. Easy to clean quickly, thoroughly.



# CONVEY

**PNEUMATI-CON® Pneumatic Conveying Systems** move a broad range of bulk materials over short or long distances, between single or multiple inlet and discharge points in low to high capacities. Available as dilute-phase vacuum or positive pressure systems, fully integrated with your process.



# TIP

**TIP-TITE® Container Tipper** dump bulk material from drums (shown), boxes or other containers into vessels up to 3 metres high. Dust-tight (shown) or open chute models improve efficiency and safety of an age-old task.



# SUCCEED

**The FLEXICON® Lifetime Performance Guarantee\*** assures you of a successful result, whether you purchase one piece of equipment or an engineered, automated plant-wide system. From initial testing in large-scale laboratories, to single-source project management, to after-sale support by a worldwide network of factory experts, you can trust your process—and your reputation—to Flexicon.



**AUSTRALIA**  
sales@flexicon.com.au  
1 300 FLEXICON

**USA** +1 610 814 2400  
**UK** +44 (0)1227 374710  
**GERMANY** +49 170 8 187 613  
**SPAIN** +34 647 670 302  
**SINGAPORE** +65 6778 9225  
**SOUTH AFRICA** +27 (0)41 453 1871  
**CHILE** +56 2 2415 1286

**flexicon®**  
.com.au