

March/April 2014
Vol.21 No.7

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



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Aseptic processing

Safety and audits

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Food scientist salaries

The median salary for food scientists in Australia is \$102,689, according to the latest Institute of Food Technologists (IFT) Employment and Salary Survey.

In the US, IFT members earned a median salary of \$90,000 in 2013 and this was up 3.4% (\$87,700) from the 2011 survey. Responses to the wide-ranging survey suggest that the economic climate is taking less of a toll on food science and careers than it did two years ago - 42% of survey respondents stated that the economy has had no impact on employment within their organisation. Around 4000 people completed the biannual survey, which is about a quarter of the IFT's US membership.

Highlights from the survey include:

- For the first time in the history of the IFT survey, women respondents represent a slight majority (52%). Among those under age 30, women account for 65% of respondents.
- A total of 87% of survey respondents are either highly (39%) or somewhat (48%) satisfied with their jobs.
- For the first time, the survey included international respondents. Median food science salaries around the globe

(converted to US currency) ranged from \$16,600 in the Philippines to \$102,689 in Australia.

- Intellectual stimulation is the number one contributing factor to job satisfaction by a very wide margin, chosen by just over half (51%) of respondents.
- Among survey respondents, the average work week is 45 hours; 19% of respondents reported working in excess of 50 hours weekly.

In addition, the survey included salaries for those individuals with a Certified Food Scientist (CFS) credential. IFT debuted the CFS credential in 2013 to recognise the applied scientific knowledge and skills of food scientists, and the Employment and Salary Survey suggests that it is indeed a beneficial designation. According to survey data, CFS recipients earn a median salary of \$101,000 vs a median of \$81,048 for those who do not have CFS certification. CFS certification is obtained by passing an exam that tests food scientists on a central body of knowledge that defines the core professional competencies of a food scientist. To read the full results of the IFT Employment and Salary Survey, visit <http://bit.ly/1DJRdm>.

Effective Listeria Control

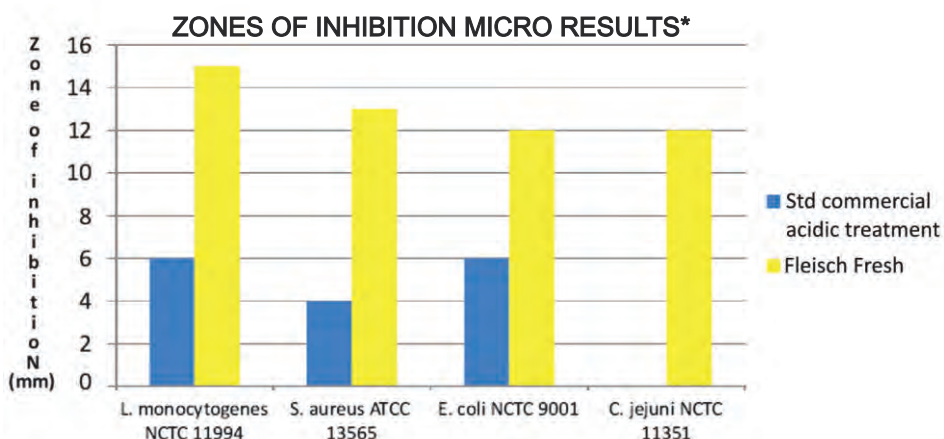
Naturally

Listeria contamination is an issue in Ready To Eat (RTE) modified-atmosphere chilled foods particularly processed meats.



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No difference between fructose and glucose, study finds

Despite fructose frequently being blamed for obesity, researchers have found no benefit in replacing fructose with glucose in commercially prepared foods.

The research, conducted at St Michael's Hospital in Toronto, showed that when portion sizes and calories are the same, fructose does not cause any more harm than glucose.

"Despite concerns about fructose's link to obesity, there is no justification to replace fructose with glucose because there is no evidence of net harm," said Dr John Sievenpiper, a researcher in the Clinical Nutrition and Risk Factor Modification Centre of St Michael's.

Dr Sievenpiper and his team compared the effects of fructose and glucose against several health risk factors, using data from previous research trials. Their research showed that consuming fructose may increase total cholesterol and postprandial triglycerides. However, fructose did not appear to affect insulin production, other fat levels in the bloodstream or markers of fatty liver disease any more than glucose did.

In fact, the researchers say, fructose showed potential benefits over glucose in some key risk factor categories.

"Some healthcare analysts have thought fructose to be the cause of obesity because it's

metabolised differently than glucose," said Dr Sievenpiper. "In calorie-matched condition, we found that fructose may actually be better at promoting healthy body weight, blood pressure and glycaemic control than glucose."

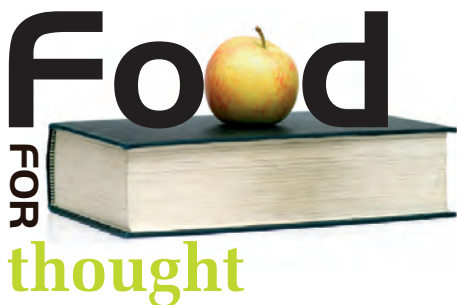
Dr Sievenpiper says that he thinks that overconsumption - rather than a particular type of sugar - is one of the leading causes of obesity.

"Overall, it's not about swapping fructose with glucose," said Dr Sievenpiper. "Overeating, portion size and calories are what we should be refocusing on - they're our biggest problems."

The research was published in the February edition of *Current Opinion in Lipidology*.



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Do eco-labels make food taste better?

Does organic food taste better than conventionally produced food? Consumers seem to think so - at least, when they're told that the food is organic. In a study at Sweden's University of Gävle, 44 study participants were offered two different cups of coffee which were identical. The participants were told that one of the cups was organic.

When asked which tasted better, most participants named the 'organic' version; some were willing to pay more for the 'eco-friendly' coffee. Generally, those who were willing to pay more were those who scored high on a questionnaire on attitudes towards sustainable consumer behaviour.

"There is an eco-label effect on taste and willingness to pay such that people are biased to prefer coffee that has been arbitrarily labelled 'eco-friendly' over an objectively identical non-labelled alternative," the study authors wrote.

"Eco-labels not only promote a willingness to pay more for the product, but they also lead to a more favourable perceptual experience of it. Understanding the psychological mechanisms that underpin the eco-label effect and how to modulate its magnitude could potentially be a key to promote sustainable consumer behaviour."

Interestingly, the researchers found that their results "speak against the notion that consumers are not prepared to pay

extra for the sake of environment alone".

"On the contrary, our findings are entirely consistent with the idea that people may view a morally loaded label as an additional characteristic of the good. The moral thing to do (ie, buying an eco-friendly product even though it costs more than a conventional alternative) appears to be a more important determinant to some individuals than tangible product characteristics," the researchers wrote.

However, some consumers will choose conventional products as they are not prepared to pay a premium for eco-labelled alternatives. "From a seller's perspective, the highest average price for a product can be extracted if the consumer is told about the eco-label whilst they have already said that they prefer that product, regardless of the customers' attitude toward sustainable consumption," the authors wrote.

"This technique could potentially be used to bypass consumer habit and promote purchase of eco-labelled products in those who would normally be unwilling to pay a premium for those alternatives."

RFID technology keeps army rations fresh

The reduced shelf life of food rations is costing the US military millions of dollars each year in wasted food. To combat this, University of Florida (UF) researchers have been working to improve the shelf life of the Army's Meal, Ready-to-Eat (MREs) and First Strike Rations (FSRs) for front-line troops.

"These rations were originally developed with a shelf life of three years for MREs and two years for FSRs - but at 80 degrees [26.6°C]," said Jeffrey Brecht, director of the UF Institute of Food and Agricultural Sciences' Research Center for Food Distribution and Retailing.

"However, when they send them to the Middle East, they could be exposed to temperatures as high as 140 degrees [60°C], at which point the shelf life could be four weeks or less, instead of three years."

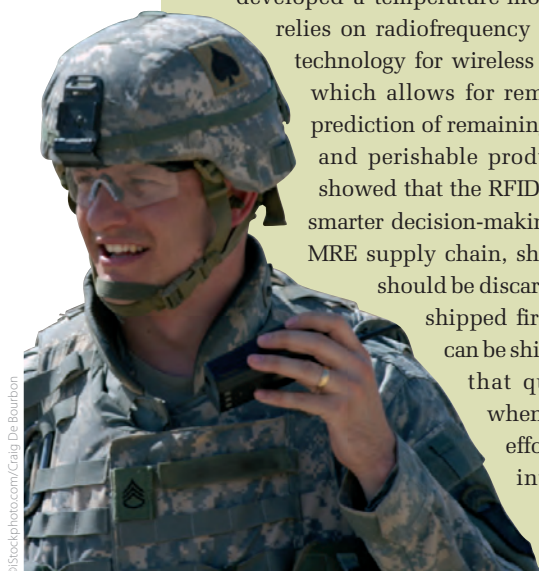
Brecht led a five-year, US\$6.7 million study into the longevity of Army rations. The research team also developed a temperature-monitoring system that relies on radiofrequency identification (RFID) technology for wireless information transfer, which allows for remote monitoring and prediction of remaining shelf life for rations and perishable products. Their research showed that the RFID system can facilitate smarter decision-making at all points in the MRE supply chain, showing which rations should be discarded, which should be shipped first and where rations can be shipped with confidence that quality won't suffer when they arrive. "These efforts, when effectively integrated within the

supply chain, can help ensure that warfighters continue to receive high-quality, highly acceptable rations with minimal product losses," said Joseph Zanchi, a logistics management specialist at the Natick Soldier Research, Development and Engineering Center. The US Defense Logistics Agency buys approximately 30 million MREs annually for all of the US armed forces. The meals are produced by several private companies. The MREs meet the Army Surgeon General's strict requirements for nutrition in operational rations, providing around 1300 calories. Since the soldiers' work is so physically demanding, the requirements are quite different than those suggested for civilians. The 1300 calories generally comprises 169 g carbohydrates, 41 g protein and 50 g fat. The food is far more varied than one might expect. From 30 days of complete menus, items included: bacon cheddar sandwiches, filled French toast; carbohydrate-enhanced applesauce; beef ravioli in meat sauce; pork sausage in cream gravy; and nut raisin mix.

"It's like feeding athletes because these soldiers have really hard, physical demands put on them and they have to get the right diet - not only the calories but the vitamins and other nutrition," said Brecht.

"Usually these things might still look good and even taste okay but they have to have certain vitamin components. We found, for example, that vitamin C was lost quite easily over time."

While the US military has yet to implement the system, Zanchi says it may be taken up in the near future.



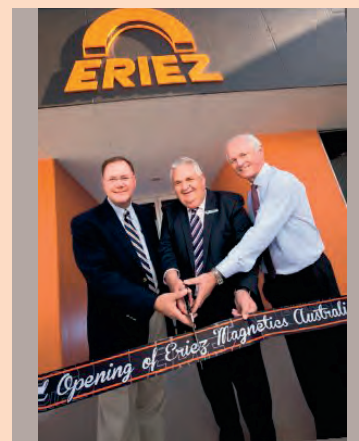
Eriez Magnetics opens \$8 million facility

Eriez Magnetics Australia has opened a new manufacturing plant to replace its previous facility. Located in the Melbourne suburb of Epping, the new \$8 million facility will make magnetic separators, vibratory feeders and flotation equipment for a number of applications, including mining, minerals processing, food, chemical, plastics and packaging.

"Eriez-Australia will continue to provide the best in customer service and advanced manufacturing processes to deliver quality products to our growing continental marketplace," said Malcolm Davy, Eriez Magnetics Australia MD. "Victoria has always been a successful base for Eriez

operations. It has provided Eriez with an outstanding workforce and access to important contract services. We believe this facility will give Eriez a competitive edge here in Australia as well as other markets Eriez serves from Melbourne. Our future growth will mean more jobs for the area."

Eriez manufactures and markets magnetic lift and separation, metal detection, materials feeding, screening, conveying and controlling equipment through 12 facilities located on six continents. The company's products are used in the process, metalworking, packaging, recycling, mining, aggregate and textile industries.



Filleting machine boosts Norwegian white fish industry



The white fish industry in Norway has historically struggled with filleting: while salmon-filleting machines exist, white fish varies so much in size and weight that developing a machine to fillet these fish has proven to be virtually impossible.

In addition, the bones in white fish are difficult to find and remove. As a result, 3 to 7% of the most valuable part of the fish is currently cut away unnecessarily during filleting.

However, a development project run by Nordic Innovation has resulted in the development of a white fish filleting machine. SINTEF, Marel, Faroe Origin and Norway Seafoods were also involved in the project.

Researchers at SINTEF ICT conducted X-ray tests in the laboratory and used CP scanners at

Oslo University Hospital to learn where the fish bones are located.

The new filleting machine locates the fish bones using X-ray technology, and fillets the fish quickly and precisely with a powerful jet of water. This means that the fish is guaranteed to be boneless, with considerably less wastage than with manual filleting.

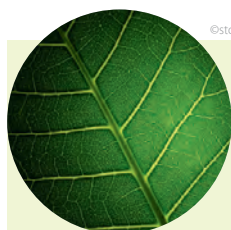
"Most of our important seafood products - such as salmon, cod and herring - receive only minimal processing or treatment before they are sent abroad," said Marit Aursand, Research Director of SINTEF Fisheries and Aquaculture.

"In other words, the potential for carrying out more processing in Norway is huge, and this robot could provide a breakthrough, giving us a much-needed competitive advantage

over low-cost countries in Asia, Eastern Europe and Russia."

Currently, fish caught in Norway may travel through two other countries to be filleted and packed before being returned to Norway for sale. This new filleting machine could make it possible to send fresh fish directly to the retailer from Norwegian facilities.

"Fish processing in Norway will soon become a thing of the past if the filleting process is not automated and made efficient and profitable. This is why this new invention is so important. It means that we can improve the quality and selection of fresh fish products, and keep the industry on Norwegian soil," said Aursand.



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Shelf tags that indicate a food's sustainability

Consumers prefer more 'sustainable' products and will choose them providing the price is reasonable. But, apart from meat and seafood, they have no way of ascertaining how sustainable the product is.

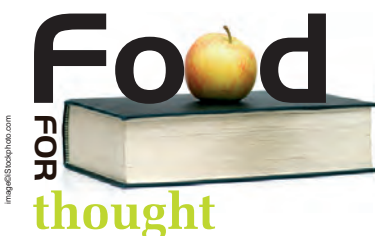
However, in the US they can. Twenty independent retailers have implemented the third-party HowGood rating system that tells customers just how sustainable or 'how good' a product is.

The HowGood rating system is centred on sustainability, freshness and local sourcing and so far 100,000 products

have been rated. There are four rating levels - None, Good, Very Good and Great and each has a tag ranging from zero to three globes.

60 to 70 different factors such as pesticides, water usage, equal opportunity employer, cover the social and environmental impact of producing a particular product are used to establish the rating.

To establish the rating, 60 to 70 different factors cover the social and environmental impact of producing a particular product - such as pesticides, water usage, equal opportunity employer etc.



www.howgood.com



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MEP Instruments to distribute Anton Paar Process portfolio

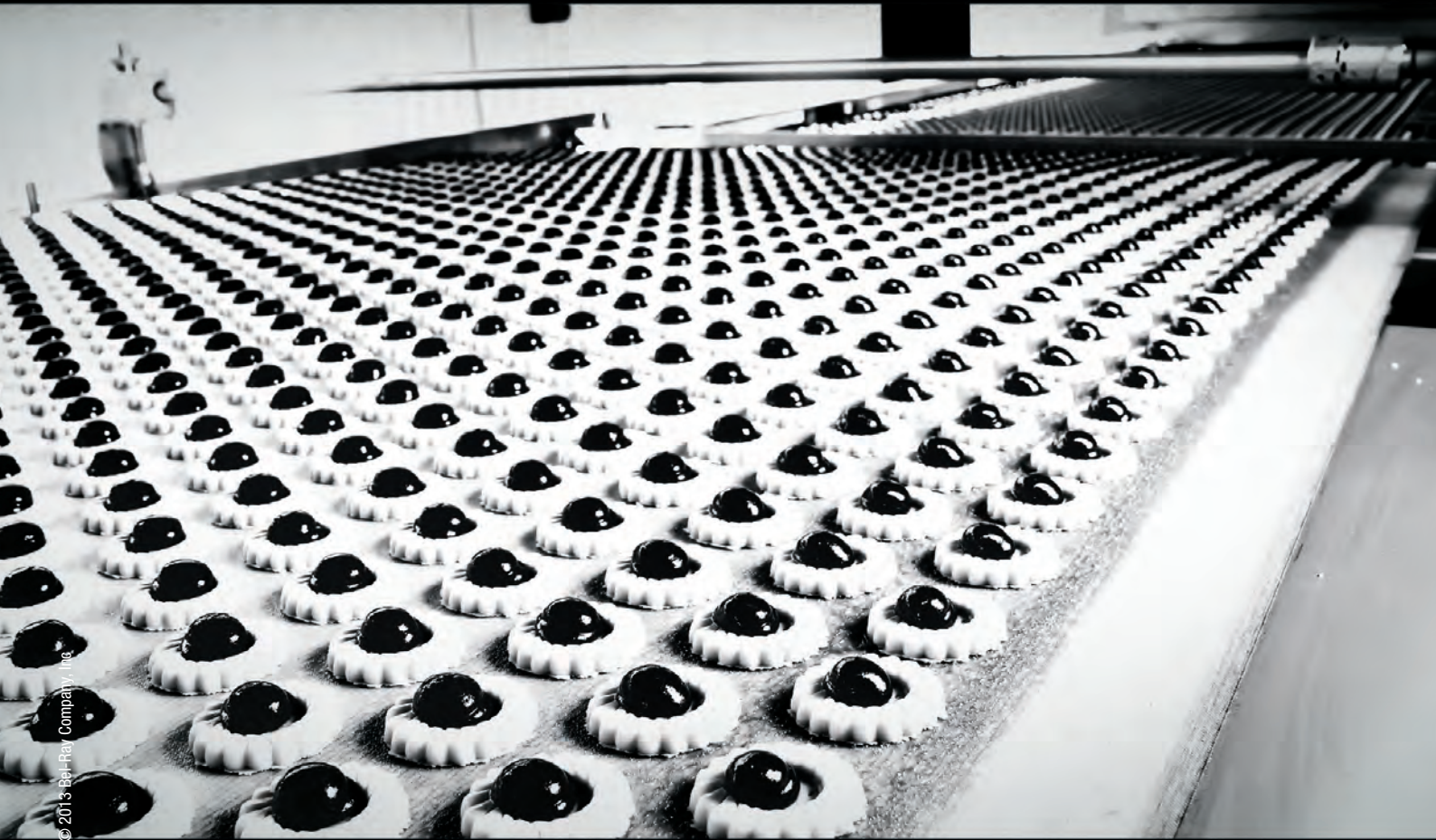
MEP Instruments is now distributing Anton Paar Process Instrumentation products in Australia and New Zealand. MEP has been responsible for Anton Paar laboratory instrumentation sales and support for the past 15 years; it will now also distribute the Anton Paar Process portfolio. The company says that combining the laboratory and process portfolios under one roof is consistent with the worldwide Anton Paar network

and will provide a central contact point for the Australia-New Zealand region.

MEP says it will endeavour to contact all known existing Anton Paar Process customers to establish support requirements, including technical support and maintenance contracts.

MEP Instruments was founded in 1999 as a joint venture company of Metrohm, from Switzerland, and Anton Paar from Austria.

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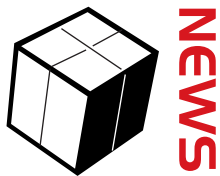
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Packaging



Demand for active and intelligent packaging set to boom

Demand for active and intelligent packaging is expected to outstrip total packaging demand growth, according to a new study from Freedonia Group. Active and intelligent packaging demand is forecast to expand 8% annually to US\$3.5 billion in 2017 in the US alone, the research predicts.

Active packaging provides functions such as moisture control, while intelligent packaging has features that show the product's status or communicate product changes and other information. While some active and intelligent packaging products have a well-established presence, a number of newer, more affordable types are emerging, especially in intelligent packaging, Freedonia says.

"Ongoing innovations will likely result in the commercialisation of new products and usage in applications that are currently unforeseen," said Freedonia analyst Esther Palevsky.

The Freedonia report, Active & Intelligent Packaging, shows that food and beverages were the two largest markets for active and intelligent packaging in 2012.

Intelligent packaging alone is forecast to reach US\$1.3 billion in 2017, recording double-digit annual gains, Freedonia says. In addition to growing product protection and food safety requirements, increases will be propelled by rapid advances for newer and emerging technologies such as quick response and other mobile marketing codes and printed electronics on packaging.

Strong gains are anticipated for time-temperature indicator (TTI) labels, based on growing cost-competitiveness coupled with the heightened presence of temperature-sensitive drugs and the significance of food safety during supply chain distribution.

Active packaging demand is expected to increase 5.7% annually to \$2.2 billion in 2017, Freedonia's research shows. Gas scavenger demand will climb at a faster pace as a result of expanded applications for oxygen scavengers in food, beverage and pharmaceutical packaging. Additionally, growth will be propelled by solid prospects for susceptor packaging in uses other than microwave popcorn and by robust increases for self-venting packaging. Rapid growth from a small base is anticipated for antimicrobial packaging, spurred by technological developments. However, cost and performance factors will tend to inhibit broad usage. The Freedonia report is available at www.freedoniagroup.com.

Are you coming to the 2014 AIP National Conference?

The Australian Institute of Packaging (AIP) has issued a 'save the date' notice for the biennial AIP National Conference, to be held on 17 and 18 June at the Sofitel Wentworth in Sydney.

With a theme of 'Packaging and Innovation Excellence', the event is designed for everyone in the packaging industry, from packaging designers, technologists and engineers to sales and marketing professionals.

The conference is the largest packaging conference of its kind in Australia and New Zealand and is run by industry for industry. Speakers have been confirmed from a range of high-profile companies, including Mondelez International, Kimberly Clark, Campbell Arnotts, Heinz, LION, Sunrice, Coca-Cola, Nestlé, Diageo, Simplot, OI and Amcor Flexibles.

Conference partners include Amcor, Innovia, Confoil, JL Lennard, Laser Resources, Loscam and Metalprint. For more information, email info@aipack.com.au or visit www.aipack.com.au.



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Plastic overtakes metal in beverage closures

Plastic beverage caps and closures narrowly overtook their metal counterparts in 2013, gaining the largest share of the global market for beverage closures. In 2007, metal closures held 51% of the market; in 2013, metal closures held 48% of the market, with plastic closures holding 49%, a new report from Canadean shows.

The growth in plastic closures is primarily motivated by a shift towards more innovative, lightweight, cost-saving packaging. Canadean predicts that the gap between plastic and metal closures will continue to widen, with plastic closures expected to hold 52% of the market by 2017.

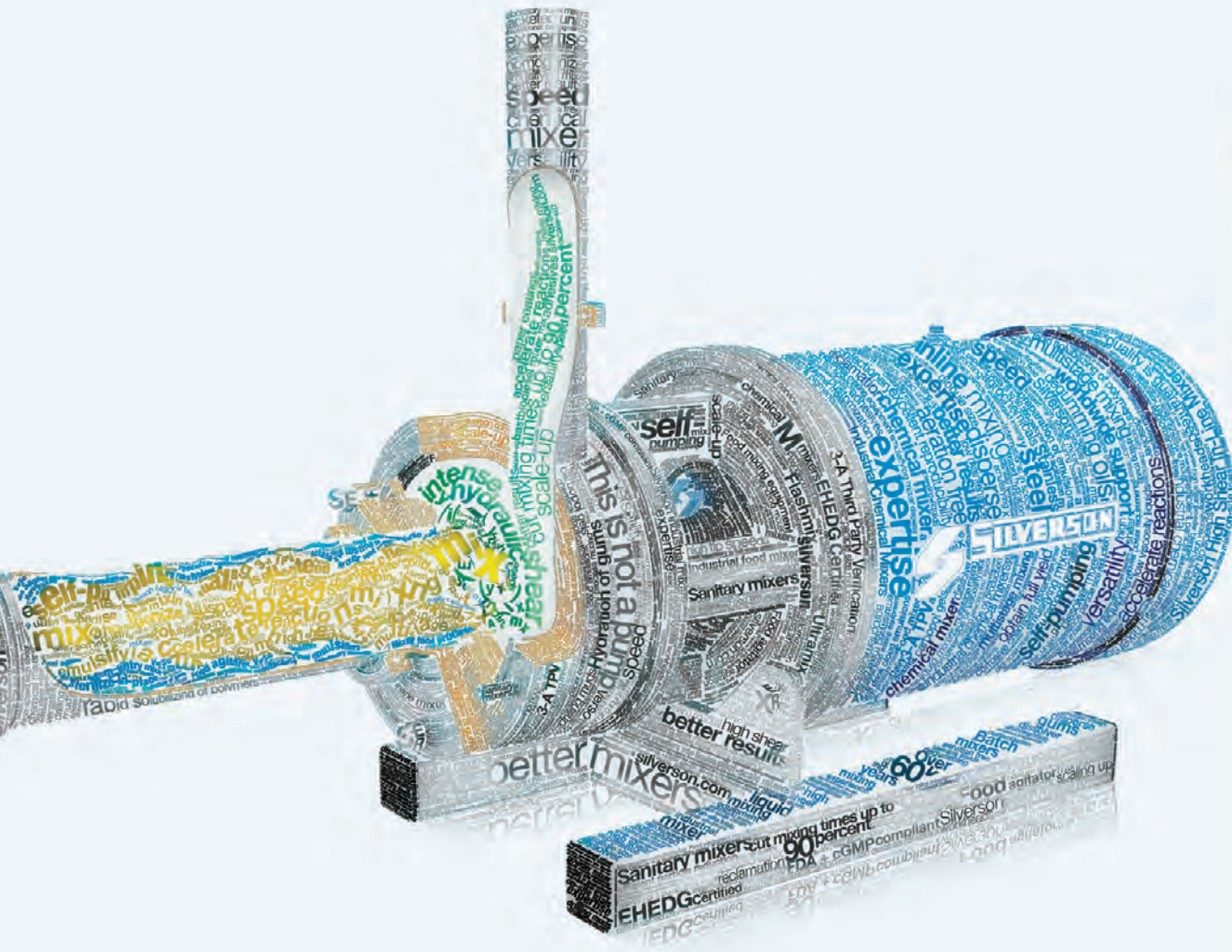
Lightweight packaging in general has been a strong trend in the beverage industry as suppliers strive to develop products to satisfy both environmental and cost concerns.

"Plastics closures crossed a critical threshold last year in overtaking the share of their metal counterparts across all CPG end markets," said Dominic Cakebread, Director of Packaging Services at Canadean.

According to Cakebread, the recent growth of plastic closures has been driven partly by the associated gain in share of plastics containers and partly by further advances in closure design, materials and systems.

"These have been focusing on reducing polymer weight and cost, while maintaining or improving technical performance and convenience features. It is the greater flexibility of plastics to adapt to the changing demands of the closure market that give them their ongoing advantage." This information is based on findings from the Canadean report 'Innovation in Caps and Closures', which was published in November 2013.

Processing



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Who audits the auditors?

What happens when rockmelons turn deadly

96% and a stellar audit rating did not stop a US rockmelon farm from selling contaminated melons that killed 33 people. How much responsibility should the auditor bear?

In 2011, whole rockmelons contaminated with *Listeria monocytogenes* sickened 147 and killed 33 people in the US. The rockmelons were traced to Jensen Farms in south-eastern Colorado. The two brothers who owned the farm were indicted with six federal misdemeanour charges for “introducing adulterated food into interstate commerce”. They each faced up to six years in prison plus up to US \$1.5 million in fines.

After seeing their farm forced into bankruptcy, Eric and Ryan Jensen have just been sentenced with each receiving five years’ probation, six months of home detention and \$150,000 each in restitution fees to victims. Victim families have already received \$3.8 million from the Jensens’ insurance policy.

Now consumers have every right to expect that the rockmelon they purchase from the supermarket will not kill them and will not make them sick. But where does responsibility lie for this contamination disaster?

Prior to this case there is no record of whole, unprocessed rockmelons causing sickness. Then there is the matter of auditing.

The Jensen brothers moved their rockmelons through the distributor Frontera Produce to retailers including Walmart and Kroger. Apparently Frontera “required” the farm to be audited by PrimusLabs, a California-based food-safety consultant that provides “internationally recognised audits” for food producers such as Jensen Farms.

Jensen Farms contracted with PrimusLabs for an audit of both its farmlands and its packing house. PrimusLabs then hired a subcontractor, Bio Food Safety, to conduct the actual audit. Just six days before the *Listeria* outbreak began, Bio Food Safety’s auditor, James Dilorio, gave Jensen Farms 96/100 and a “superior” rating.

There is no question that Jensen Farms was the source of the outbreak and several problem areas have been highlighted. The packing room floor had water puddles, the conveyor and washing system was difficult to clean, the melons were washed in town water without added chlorine sanitiser, the farm-warm melons were not pre-cooled before going into cold storage ...

However, if you had just received 96/100 for your food safety audit would you be looking for problems?

The Jensen brothers had no intention of causing anyone any harm - they just wanted to run their farm and make a living for their families. There is no way the brothers could have been charged with murder as there was absolutely no “intention to cause harm”. If the brothers were charged with a felony they could quite justifiably plead “not guilty” and hold their audit results up as proof that they were endeavouring to do the right thing. The matter could stay before the courts for decades.

To avoid this, the brothers were charged with a misdemeanour. Unlike felony convictions, misdemeanour convictions do not require proof of fraudulent intent or even of knowing or

It is very easy to say that food processors should check their auditors - but how do you do that?

wilful conduct. All that is required is that the person held a position of responsibility such that they could have prevented the violation. There is no need to even prove that the person knew of the violation - just that they could have stopped it.

The Jensen brothers could have stopped the contamination disaster so they had absolutely no option except to plead guilty.

With the farm bankrupt and each receiving five years' probation, six months of home detention and \$150,000 in restitution fees to victims, the brothers will now be able to sue the auditors, distributor and even the retailers.

Food safety is a basic consumer right and the responsibility for this safety needs to continue through the full distribution chain.

Walmart and Kroger required audits that they knew full well would generate a glowing inspection, all the while ignoring what was there to be seen. They used their market power to squeeze the supply chain of any profit that could have been invested in food safety while covering their own backs by set-

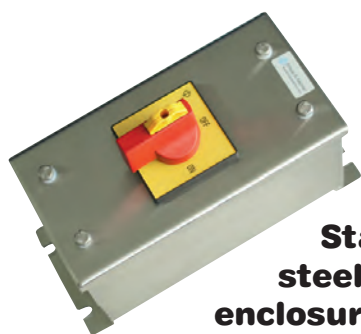
ting the specifications for the "fresh fruits". The relationship between retailers and auditor is simply a conspiracy to keep product flowing through the chain of distribution at the lowest cost and an attempt to shield retailers from responsibility for the products they sell.

If the Jensen brothers had not met "Primus Certified" standards and so been "Primus Certified" they could not have sold and distributed their rockmelons in interstate commerce through Frontera.

They would also not be pleading guilty to federal misdemeanours and 33 people would not have died.

It is very easy to say that food processors should check their auditors - but how do you do that? And what can you do when the choice of auditor is dictated by those to whom you are selling your goods?

Food safety is a basic right and it is crucial that when food-borne disease outbreaks occur they are investigated and steps are taken to ensure that the problem cannot happen again.



Stainless steel switchgear enclosures

Kraus & Naimer has added a 1.6 mm stainless steel enclosure to its 6S Series. The enclosures provide rigorous protection for vital switchgear but have the same footprint as plastic versions.

Suitable for use in the dairy, beverage and food industries, the 6S series can withstand aggressive environments. The enclosures are also used in the marine and mining industries and in sewage treatment plants, material handling and conveyor systems. The enclosures are constructed from 316 stainless steel and are rated to IP66. They are available with bottom-threaded entries and four screw cover fixings with or without external mounting feet. With standard sizes of stainless steel, mild steel and plastic enclosures, custom designs are also available.

Kraus & Naimer Pty Ltd

Contact info and more items like this at wf.net.au/W430



Connectors with EMC protection

ifm efector's ecolink EVC series connectors provide permanent high EMC protection.

The asymmetrically acting saw-tooth contoured vibration protection holds the coupling nut tight in position. In addition to screening, this ensures a low contact resistance between the nut of the connector and the housing of the connected device. This ensures a permanent high protection against interfering fields.

Connectors are often exposed to harsh environmental conditions. The ecolink connectors' integrated mechanical end stop made from FKM protects against destruction from overtightening of the nut. A torque wrench is not necessary.

ifm efector pty ltd

Contact info and more items like this at wf.net.au/V578

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Get to know the CASSIDA food grade lubricants for Happy Machines at fuchs.com.au or Free Call Australia 1800 1800 13.





Food safety site assessment

Food processing equipment comes into contact with lubricants for a variety of purposes such as to reduce friction between moving parts. People use a combination of non-food-grade and food-grade lubricants because they are trying to reduce costs. Most errors occur when someone picks up the wrong lubricant and then goes and puts that into a machine that is supposed to be using food grade. Food production companies with good operational practices often use exclusively food-grade lubricants, even in areas that are not expected to come into contact with food, as a precaution.

Fuchs has developed the Cassida range of food-grade lubricants and can also provide a site assessment from a member of its trained technical team to identify any areas that require food-grade lubricants. The company says Cassida lubricants are fully synthetic, zinc- and ash-free, ISO21469 certified and, because they are synthetic, they are longer lasting.

Fuchs Lubricants

Contact info and more items like this at wf.net.au/W297

Food-approved gloves and sleeves

The Taeki5 Food Approved gloves and sleeves series provides protection in applications such as food processing, boning and carving, fish filleting, meals preparation and a variety of other food handling applications. The series has been developed and approved according to ISO, ANSI, IEC, EN388 and EN407 standards to deliver a high protection level against cut, snag, abrasion and heat.

Made from 100% Taeki5 fibre, the safety gloves and sleeves will keep their full properties after numerous washing and drying cycles, making them a safe and cost-effective solution. The gloves and sleeves are lint free and do not change colour or properties under natural or artificial light.

Taeki5, Hand Arm Body Protection

Contact info and more items like this at wf.net.au/V108

Lockout/tagout program

Each year, thousands of people are injured in the workplace during maintenance of machinery. Many of these injuries could have been avoided with an effective lockout/tagout system.

The SafeSite Program by Mayo Hardware delivers the manufacturing industry customised lockout/tagout solutions that are designed to meet the specific needs of each site. The program includes: situational analysis workshops, which involve all stakeholders to ensure all key requirements and current systems are understood; site assessments to help identify exact lockout/tagout requirements; and procedural reviews to review existing lockout/tagout procedures or create new ones.

The company supplies Master Lock safety padlocks and accessories, which are designed to effectively isolate energy sources in the workplace, and custom key solutions to ensure that one employee's key cannot open another employee's personal padlock. Custom engraving is available to customise padlocks with company logos or other details to minimise lock theft and enable quick and easy worker identification. A broad range of plant identification solutions is available, including traffolite labels and RFID labelling to ensure workers lockout the correct piece of equipment.

Post implementation of a lockout/tagout system, Mayo Hardware provides ongoing 'health checks' of the system. The company can offer a range of solutions for difficult plant isolations.

Mayo Hardware Australia

Contact info and more items like this at wf.net.au/W018



Protective eyewear

3M's Virtua AP Protective Eyewear offers sleek unisex styling, lightweight comfort and good value. The product is designed with high-wrap polycarbonate lenses and integral side shields to provide a comfortable fit and high protection.

There are four models in the series, including a choice of anti-fog and hard coat lens. A selection of task-specific lens tints is available: clear, grey, amber or mirror.

The impact-resistant polycarbonate lenses absorb 99.9% UV rays. The glasses have a medium impact rating.

3M Personal Safety

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Preliminary *Salmonella* detection in 24 hours

As a major foodborne pathogen, *Salmonella* strikes fear into the hearts of all food processors. If the bacteria is detected in foods, the resulting product recalls can lead to significant financial loss and possible charges of criminal liability for the companies involved. Not only does the organism cause diarrhoea, fever and abdominal cramps, Salmonellosis can be fatal in young children, the elderly and those with compromised immune systems.

Current *Salmonella* detection methods can take 72 hours to yield results and often require artificial alteration of the bacteria colonies. To be absolutely sure that their food product is not contaminated with *Salmonella*, processors have to quarantine the product for this time to gain clearance before they can release the product to the marketplace.

Now it is claimed that this time can be cut to 24 hours by using a laser sensor developed at Purdue University.

Known as BARDOT (bacterial rapid detection using optical scatter technology), the machine scans bacteria colonies and generates a distinct black and white 'fingerprint' by which they can be identified. BARDOT takes less than 24 hours to pinpoint *Salmonella*.

"BARDOT allows us to detect *Salmonella* much earlier and more easily than current methods," said Arun Bhunia, a professor of food science who collaborated with then-Purdue engineer Daniel Hirleman to create the machine. "This could ultimately help provide safer food to consumers."

The BARDOT system identifies bacteria colonies by using light to illuminate their natural characteristics, preserving the colonies for later study. The machine can be operated with minimal training and used in locations with limited resources.

BARDOT uses a red diode laser to scan bacteria colonies on an agar plate. When the light penetrates a colony, it produces a scatter pattern, a unique arrangement of rings and spokes that resembles the iris of an eye. The pattern is matched against a library of images to identify the type of bacteria.

To test BARDOT's ability to identify *Salmonella*, Bhunia and his fellow researchers grew bacteria from rinses of contaminated chicken, spinach and peanut butter on agar plates for about 16 hours. After the plates were covered with tiny spherical colonies of bacteria, they placed each plate inside BARDOT - which is about the size of a large microwave oven - and scanned the colonies.

BARDOT identified *Salmonella* bacteria with an accuracy of 95.9%. It also individually distinguished eight of the most prevalent *Salmonella* serovars - distinct variations within a species of bacteria. Identifying a particular serovar helps trace bacteria to the original source of contamination.

Atul Singh, postdoctoral research associate and first author of the study, said BARDOT could be an effective preliminary screening tool, especially for food processors testing a large number of samples.

"BARDOT screens quickly and inexpensively," he said. "If you get a positive result for *Salmonella*, you can do a follow-up test. This can help food processors make more informed decisions."

While many tools can only detect a single kind of bacteria, BARDOT picks out multiple types of disease-causing bacteria on a plate with a single scan, Bhunia said. In addition to *Salmonella*, BARDOT can identify *Escherichia coli*, *Vibrio*, *Listeria* and many more foodborne pathogens.

"That's the beauty of this system," Bhunia said. "It's so versatile. It can find organisms that you didn't even think about."

The paper was published in *mBio*. 

Inline fruit mixer

The Grunwald integrated inline fruit mixer has been designed to keep the product feeding pipework as short as possible. The inline fruit mixing keeps the mixing process to a minimum during product changeover, reducing the loss of fruit and enabling faster changeover.

The technology is suitable for machines filling yoghurt with a fruit layer. In order to fill yoghurt with a fruit layer, a pre-filler for fruit as well as a main filler for stirred natural yoghurt is used.

To produce stirred fruit yoghurt, the pre-filler is used as a fruit dosing pump which accurately feeds the fruit preparation cycle by cycle to the filling station for the stirred natural yoghurt. The inline mixer equally mixes the fruit preparation in the yoghurt.

The percentage of fruit preparation can be changed on the operator panel of the cup-filling machine. The modified values are automatically stored in the recipe control.

Changeover from yoghurt with a fruit layer to stirred fruit yoghurt can either be carried out manually, which the company says takes approximately five minutes, or automatically by pushing a button on the touch panel, depending on the specification of the machine. A range of machines are available from a simple design up to a fully automatic CIP/SIP design.

The technology is designed to be used on flexible rotary-type and linear machines with frequent changeovers between various types of fruit. It is capable of production speeds of up to 12,000 cups per hour and can fill up to six types of fruit.

Kroner Engineering Pty Ltd

Contact info and more items like this at wf.net.au/W166

Colour-coded cleaning and food handling product range

Vikan and Wells have launched the ninth colour in the Vikan cleaning and food handling range: pink.

As the number of cross-contaminants increases, food and beverage processors are seeking additional ways to manage cross-contamination risks. Colour-coding is one method of managing such risks.

The pink colour contrasts with many foods and ingredients, making it easy to see. The pink products include the ergonomic design features of the Vikan range.

The pink range is available in 29 products, covering key cleaning and food handling areas encountered in food processing.

WR&D Wells Pty Ltd

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marel

Local equipment wins out over European design

Aylesbury Walnuts - one of New Zealand's largest walnut orchards with more than 4500 trees - is gearing up for an increase in production. The company chose Wyma's post-harvest equipment over French competitors to aid the process.

Early movers to the Canterbury walnut market, Frank and Margaret Brenmuhl did their fair share of research - including hands-on research in France - to determine which equipment best suited their steady growth in production.

"Most importantly, we needed customisable equipment to accommodate our growth in production. We also needed something that would stand the test of time. The road to full capacity for a walnut orchard is a long one," said Frank.

The Brenmuhs' interest in the walnut industry grew from Margaret's passion for trees and their desire to break away from the early mornings of dairy farming. They bought land in 1996 with friends from Reefton and planted shelter trees in the same year, before planting their walnut trees in 1999.

At the time, there was huge hype in the New Zealand walnut industry stemming from research at Lincoln University analysing the viability of walnut orchards and establishing New Zealand varieties. "Demand was outdoing supply and we (New Zealand) were importing about 500 tonnes a year from China and the States," Frank said.

Seventeen years on and now processing 3 to 4 tonnes of walnuts each year, the Aylesbury Walnut line consists of a Wyma Hopper, Gooseneck Elevator and Conveyor. Frank believes this equipment has improved the laborious task of washing and sorting produce ready for sale. "After a slow start, we are really seeing progress over the last couple of years," Frank said.

Situated near West Melton, Aylesbury Walnuts is close to Wyma's headquarters. However, this was not the only reason the Brenmuhs chose to install a Wyma line. Frank researched local equipment compared to overseas equipment. "Price was much the same but we found Wyma's equipment was better quality than that of the French companies," he said.

The ability to customise equipment was one of the most valuable assets that Wyma provided. "Our orchard has the potential to produce 80-100 tonnes a year, so the equipment needed to be adaptable," said Frank. "Wyma has been excellent. We put forward an idea and they delivered - can't



ask for better, really." Maria Tiede - Frank and Margaret's daughter - holds a Masters in Technology, so understandably she took an interest in the planning stages of the processing line. She was impressed with the quality and robustness of the equipment.

"Wyma thought about the finer details, unlike some competitor products I have seen, right down to the edges of the conveying inspection table which has smooth edges to rest forearms for long periods during inspection," said Maria.

"Wyma's knowledge certainly helped us to customise a line specific to walnuts. Their experience showed when it came to selecting cleat size, hopper design and movement of produce through the line."

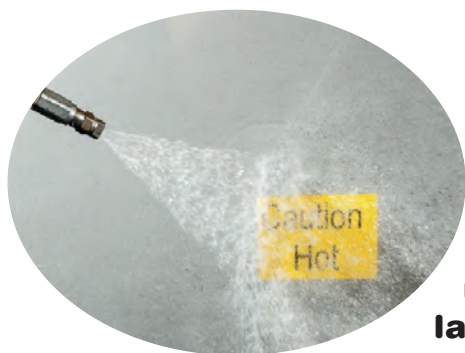
Wyma also had to meet a unique request from Frank: the conveyor had to be able to run at what he calls "wife speed" - slow enough for Margaret to be able to sort the walnuts by herself at the belt if necessary.

Maria's interest in Wyma led her to request a tour through the Wyma factory and after meeting with the engineering manager, Peter Knotts, the tour ultimately led to a job as a Wyma design engineer. "With her background, I knew she would fit in well here," Peter said.

Maria also has her own walnut orchard, which is in the early stages of growth. She plans to use the Wyma line to process her walnuts as production increases. Maria believes employment at Wyma has given her exposure to large, international processing lines and other competitor products out there. "With that experience I look forward to working with my parents to develop our line further as the trees mature," Maria said.

Wyma Engineering (NZ) Ltd

Contact info and more items like this at wf.net.au/W038



Washdown-resistant labels

Brady ToughWash washdown-resistant labels can withstand the pressures of high heat, harsh chemicals, high-pressure sprays and multiple washdown cycles commonly used in food and beverage processing without falling apart or falling off.

The labels combine good print durability with long-lasting label construction, enabling food and beverage processors to put safety, lean and instructional messaging directly at the point of need. This ensures worker safety, protects food product and maintains an efficient plant, the company says.

ToughWash labels are available in a variety of formats to be used with Brady's thermal transfer printers, including the BMP71 portable printer, BBP31 sign and label printer, BBP33 sign and label printer and GlobalMark2 industrial label maker. Brady also has available a ToughWash metal-detectable label that can be detected as foreign debris in the food stream using common metal detectors.

Brady Australia Pty Ltd

Contact info and more items like this at wf.net.au/W177

Connectors for industrial automation applications

Turck's overmoulded M40 powerfast connectors offer durable power connectivity in harsh environments. The connectors are factory tested to ensure optimal performance in harsh industrial automation applications and, according to the company, offer a more robust connectivity solution than field-assembled versions.

The connectors offer both power and signal capabilities within the same connector, and are capable of up to 35 A. The powerfast line offers male or female straight connectors, standard and custom lengths and pigtailed or extensions. For a complete system, the powerfast line also includes mating receptacles, cordsets, splitters and a jumper plug.

Allowing for a discrete or distributed power system, the connectors are suitable for power applications, including applications with motors, lights and heaters. The connectors have a protection rating of IP67, offering protection against dust and water ingress.

Turck Australia Pty Ltd

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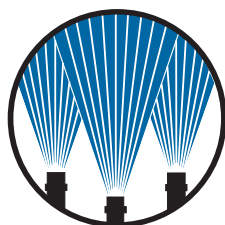
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Economical vacuum supply in meat-processing plants

An integrated packaging concept that guarantees finished products are packaged hygienically, reliably, swiftly and efficiently is an important component in modern production of meat and sausage products. This is why innovative meat-processing plants are continuously working to optimise their production processes and integrate their packaging lines into the overall process in the best possible manner.

The correct selection of vacuum generation systems can influence the operational reliability and cost-effectiveness of the packaging process. Various vacuum supply options are available, depending on the size of the plant and the production quantities involved. These alternatives are detailed and considered below to find the best possible solution with regards to technology and cost-effectiveness.

Vacuum packaging of meat and sausage products offers a fundamental advantage: the elimination of the air in the packaging drastically reduces the oxygen content, slows down the activity of bacteria requiring oxygen and thus significantly increases shelf life. Additionally, vacuum packaging is hygienic and enables the products to be presented in an attractive manner.

A wide range of vacuum packaging machinery is available on the market, meaning that there is a suitable packaging machine for all packaging requirements. Regardless of their design or size, these packaging machines have one thing in common: for all machines, negative pressure must be generated to achieve the necessary vacuum in the packaging. This can be achieved by either an integrated or a separate vacuum pump. Other alternatives include central vacuum supply systems to which several packaging machines are connected.

Integrated vacuum pump

Normally, the vacuum pump is integrated or set up separately in the immediate vicinity for all vacuum packaging machines - from the chamber machine to the thermoforming packag-

ing machine. Oil-lubricated rotary vane vacuum pumps are almost exclusively used for this purpose (Figure 1). This type of vacuum pump, developed specifically for the packaging industry by Dr-Ing K Busch GmbH in the 1960s (Figure 2), has long been a standard in vacuum packaging.

The vacuum pump, either integrated or set up separately to the packaging machine, is the simplest and most common way of generating the vacuum for packaging. Short pipes between the vacuum chamber, sealing station and the vacuum pump guarantee that the air is rapidly sucked out of the packaging. Larger-scale thermoforming packaging machines with high packaging volumes may also be fitted with a roots vacuum pump. The combination of vane and roots vacuum pumps means the pump-down time is shorter. In practice, this means shorter cycle times and thus a larger quantity of packaged products per time unit. If several thermoforming machines are operated, at least partial centralisation of the vacuum supply should be considered.

Partial centralisation

With partial centralisation (Figure 3), the rotary vane vacuum pumps are removed from the actual packaging room and integrated into a central pre-vacuum system for all packaging machines in a separate room. Dry-sealed roots vacuum pumps are installed directly in the packaging machines and connected to the central pre-vacuum generation system with a pipe system. This design ensures that the roots vacuum pumps operate at maximum efficiency and thus enable short pump-down times during packaging.

Partial centralisation means the rotary vane vacuum pumps are eliminated from the production room, thus preventing the danger of aerosol emissions. With a partially centralised system, it is always logical to physically locate and operate from two to a maximum of five thermoforming packaging machines together. If more packaging machines are used, the investment costs are too high due to the roots vacuum pumps in the individual machines; thus, it is recommended to fully centralise the vacuum supply.

Central vacuum supply

Cost-effectiveness

Full centralisation of the vacuum supply (Figures 4 and 5) is generally an economically viable option from six packaging machines. Usually, it is safe to assume that substantially fewer vacuum pumps are required for a central vacuum supply than for a set-up of individual vacuum pumps directly beside the packaging lines. If the vacuum supply is subsequently converted from a decentralised to a centralised system, existing vacuum pumps can be integrated into the new centralised system, reducing the investment costs.

The substantially lower energy costs when using roots vacuum pumps should not be underestimated. The cooling requirement for the room climate is also reduced due to the fact that all vacuum pumps are located outside the packaging room. This, in turn, clearly improves the total energy consumption in favour of a centralised system.

Hygiene

The removal of all vacuum generators in the production and/or packaging room in turn eliminates the danger of food contamination through oil aerosols. Additionally, there is no need for employees to enter the hygienically sensitive packaging room for maintenance or repair work. Cleanroom conditions can therefore be created in the area surrounding the packaging lines.

Operation method

The individual packaging chambers are pumped out in two stages to be able to run maximum cycle frequencies on the packaging lines. To do so, the critical pressure gradient is utilised and thus achieves the fastest possible evacuation. This requires a low vacuum pump station for the initial evacuation and a fine vacuum pump station for the evacuation on packaging pressure. The reversing valves with the corresponding control units are attached to the packaging machines. They control the transition from a low to a fine vacuum.

The thermoforming vacuum pump station supplies the vacuum to the packaging machine moulding station. Here, the base film of the packaging is heated, sucked into the mould and shaped accordingly into packaging recesses.

This separation into various vacuum stations is necessary on the one hand, as the moulding and sealing functions run at different vacuums and, on the other, as a substantially lower pump suction capacity is required for the two-stage evacuation of the sealing chamber. The pipework serves as a vacuum buffer. This buffer is necessary to keep the packaging pressure at a constant level, even when all the packaging machines are running with the same number of cycles.

The central vacuum system is fully automatic: it activates individual vacuum modules if a greater vacuum is required

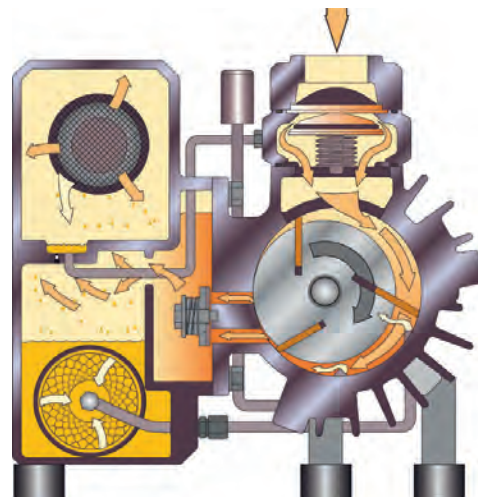


Figure 1: Cross-section of an oil-lubricated rotary vane vacuum pump R5 from Busch.

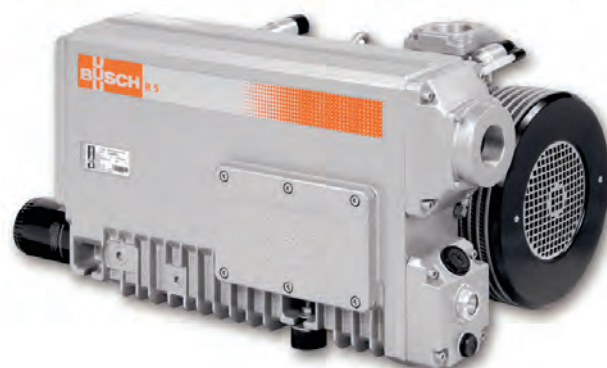


Figure 2: Rotary vane vacuum pump R5 0160 B for larger packaging machines.

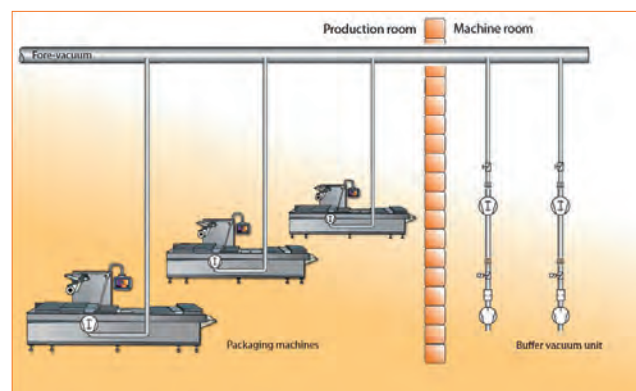


Figure 3: Partial centralisation of the vacuum supply: the roots vacuum pumps remain in the packaging machines; the vacuum pump stations to generate the low vacuum are set up in a separate machine room.



Figure 4: Central vacuum system for more than 20 packaging lines.



Rotary vane vacuum pump R5 0160 B for larger packaging machines.

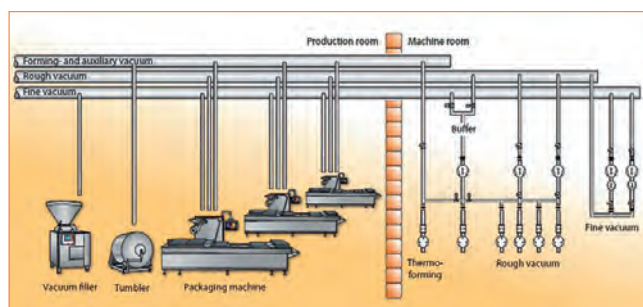


Figure 5: Full centralisation of the vacuum supply: all vacuum consumers are connected to the central vacuum system. There are no vacuum pumps in the production and packaging rooms.

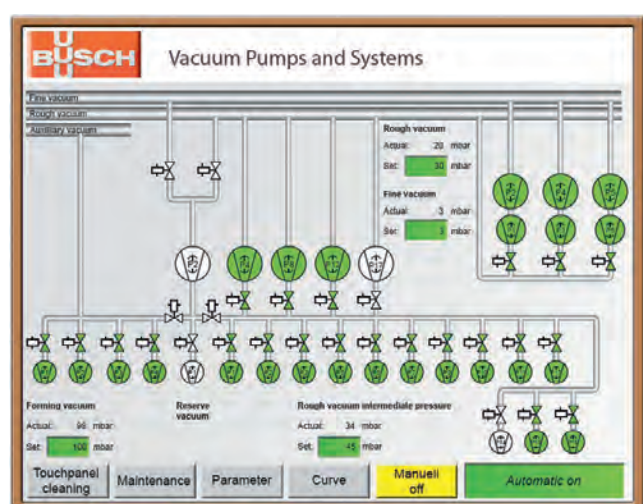


Figure 6: Integration of the vacuum supply in the process control system enables permanent information about all relevant output data.

and/or switches off individual vacuum modules if a smaller vacuum is required. If a vacuum pump fails in the low, fine or thermoforming pump stations, then the reserve pump is automatically activated. This ensures maximum operational safety for the vacuum supply to the packaging machines.

Maintenance

A central vacuum supply system has a modular design, meaning that individual modules can be disengaged for maintenance. When this happens, a reserve unit automatically activates. This means that maintenance work can be carried out during operation without affecting the production output of the packaging machines. In the central system, the individual rotary vane vacuum pumps are subjected to substantially lower loads relative to the individual units, thus extending the maintenance intervals. Installing the central system outside the production area also benefits maintenance, as maintenance work does not result in interruptions to operational processes or hygiene breaches.

Integration into the process control system

Central vacuum supply systems are very well suited for integration into the operational process control system (Figure 6), meaning that the vacuum plant can be controlled and monitored from a PC. Any arising indicators highlighting imminent faults can be easily identified and rectified before the machines fail. The necessary technical parameters can be permanently called up and the pressures in the vacuum lines are displayed in graph form. This allows all process-related data to be evaluated and archived. Valuable information is supplied to the quality assurance and repair departments.

Summary

In systems using two or more vacuum packaging machines, the operator or responsible head of operations should consider how the vacuum is generated. They should not forget that production (eg, with sausage fillers or tumblers) also requires vacuums that can likewise be supplied from a central vacuum supply. The different vacuums and suction capacities at the various vacuum applications make it necessary for a vacuum specialist to precisely analyse the actual situation and then offer tailored solutions.

Busch Australia Pty Ltd

Contact info and more items like this at wf.net.au/W263



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Fish processor selects second metal detector

White fish processor Kirwin Brothers Limited produces a range of wet and smoked fish fillets and portions. To keep up with growing demand and to meet the production requirements of a new customer, the company needed to install metal detection equipment. Kirwin Brothers decided on a Phantom metal detector from Fortress Technology. Installed at the end of a completely new line, the bespoke unit inspects wet fish fillets sold in bulk by either weight or count and packed under ice.

Fortress custom designed the detector to fit on a low-level line rather than at standard operating height so Kirwin Brothers employees could more easily lift the heavy containers from the conveyor belt to the cold store.

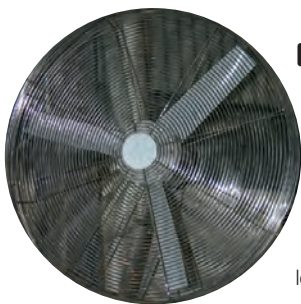
Happy with the system, Kirwin Brothers purchased a second four months later to meet the increased volume of new pre-packed products which are supplied to supermarket retailers. "We opted for Fortress metal detectors because the company came highly

recommended by one of our suppliers. We were aware its equipment is considered the best in the industry by many food processors," said Paul Robinson from Kirwin Brothers.

"Rest assured the product and service provided by Fortress was exceptional. Both metal detectors were delivered on schedule and have proved to be robust, reliable and very easy to use. "The second metal detector in particular has helped increase the efficiency of our packing operation by eliminating double handling and transferring product between lines."

Dynamic Inspection Ltd

Contact info and more items like this at wf.net.au/W464



Food-grade stainless steel air circulator range

Fanquip's range of food-grade stainless steel air circulators includes stainless steel guards, stainless steel motors and stainless steel brackets for rustproofing and cleanliness. Any components that are not stainless steel are made of inert glass-reinforced plastic, which reduces the potential for contamination. Three blade diameters are available: 460, 630 and 810 mm. The company claims the units possess the highest air output of any air circulator on the Australian market.

The units are completely relocatable, allowing the user to reposition them as often as necessary to where they will be most effective. The units have an IP56 rating, meaning they can withstand a complete washdown at regular intervals without incurring any damage.

Fanquip

Contact info and more items like this at wf.net.au/W226

iPhone app for conversions and volume calculations

The Silverson Mixer Tools app is a conversion tool designed for process engineers that is used to convert a range of units (such as length, power, temperature, weight, etc) as well as calculate mixing vessel volumes. Available for iPhone and iPad operating systems, the app can be downloaded from the iTunes App Store.

The app helps users calculate process applications for Silverson mixers and includes a tool for calculating the volume of most mixing vessels and tank designs with cylindrical or rectangular sides and dished, flat or conical bases.

Users can email and share calculated results from the app and also view Silverson's product lines and website from within the app via an integrated browser.

JL Lennard Pty Ltd

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Food-grade lubricant range

Fuchs has developed the CASSIDA range of food-grade lubricants. The range includes gear oils, hydraulic oils, lubricating greases and maintenance aerosols.

The products are fully synthetic lubricants. The fluids are zinc- and ash-free and are manufactured in three dedicated plants which have ISO21469 certification.

All lubricants in the range are NSF H1 registered for use on machinery where incidental contact between food substance and lubricant may occur. The direct contact lubricants are also 3H registered for safety, meaning they are acceptable for incidental contact with food, as well as for use as release agents on hard surfaces that are in direct contact with meat and poultry.

As the range is synthetic, the products last longer in application, according to the company. The products are suitable for use in the food, beverage, animal feed and pharmaceutical industries.

Fuchs Lubricants

Contact info and more items like this at wf.net.au/W376

Sanitary high-flow housing system

3M Purification has designed the Sanitary High Flow system for a variety of applications in the beverage market.

The company says it is particularly effective in the bottling line filtration train within Australian wineries. With a complete sanitary design, the housing is fabricated from 316 stainless steel and is able to be steam sterilised in situ.

The housing offers a number of advantages over traditional 'candlestick' filtration: a compact housing means a smaller footprint within the production facility; high dirt-loading capacity for longer cartridge life; high flow rates mean less cartridges required and quicker change out times.

The cartridge is specifically designed to deliver high flow rates with a single cartridge capable of over 30,000 L/h. The cartridge is constructed from polypropylene and is approved by the US FDA for use in the food and beverage market. A 'twist to lock' motion ensures that a positive seal is achieved on installation and makes changing the cartridge a quick and simple process. The cartridge has a 99.9% removal efficiency rating ensuring clarity. The housing is in a horizontal orientation which minimises any potential OHS risks associated with lifting used cartridges from traditional format housings. The housing itself can be connected into the production line with either a 3 or 4" triclover connection.

3M Purification Pty Ltd

Contact info and more items like this at wf.net.au/W299



PROCESSING

ifm efector



Intelligent vibration switch, simply smart

The VNB001 is the first member of a new series of compact vibration sensors. It is used for online monitoring of overall vibration of machines and equipment according to ISO 10816.

This unit is distinguished by its simple set-up, requiring no PC software for parameter setting.

The unit is based on the proven, reliable efector octavis technology and can also be used on the applications in the mobile sector. The sensor measures the RMS or Peak vibration velocity (mm/s or in/s). Measurement value and switch point conditions are visualized on the LED display.



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Steam cleaning equipment

Steam Australia's range of steam cleaning equipment enables businesses to maintain an effective cleaning and sanitation program.

When using sanitisers, care must be taken not to leave any residues on the surfaces treated, as these may contaminate the food. It is also necessary to keep facilities as dry as possible as bacteria can proliferate in stagnant water. The low moisture content involved in steam cleaning leaves little water behind to stagnate.

High temperatures can play a role in the elimination of bacteria. The high temperature produced by a steam cleaning machine can eliminate pathogenic microorganisms, according to the company. Steam cleaning sanitation can decrease the possibility of sanitiser-resistant strains developing, which can occur when using certain

chemical sanitisers.

The use of saturated steam technology can simplify the sanitising process and reduce the risk of chemical contamination. According to the company, it is a quick, safe, economical and environmentally sound method of sanitising surfaces in the food manufacturing industry.

Steam can clean nooks and crevices that often cannot be reached by hand. Cleaning with steam is also suitable for food environments where water cannot be used as vapour steam is dry and will not wet surrounding areas.

Steam Australia

Contact info and more items like this at wf.net.au/W349

On-site leak detection service

Detecting defects in heat exchangers, pressure vessels, heater coils and jacketed tanks has traditionally been a difficult process, involving undesirable chemicals/gases or expensive disassembly of machinery for inspection. The SPX Gappscan on-site inspection service offers an efficient eco-friendly solution for detecting leaks.

This method of identifying even minute cracks or holes is claimed to substantially reduce the risk of product contamination and lower overall production costs.

The non-intrusive Gappscan technology does not require any undesirable chemicals or gases to evaluate the internal status of machinery, and access to just one side of a heat exchanger is required. The process uses a quick-connect system, which requires only mains water to operate.

Testing is swift, minimising interruptions to production. Test results are instantaneous, recorded with GPS information and utilise a unique reference number for complete traceability.

The service is a certified process carried out by a qualified inspector who can provide an immediate assessment of any action required. The system detects cracks and holes below five microns, enabling the pre-detection of leaks and meaning non-urgent repairs can be monitored and scheduled with other planned maintenance to optimise plant production time.

Using only water, the service offers an environmentally friendly methodology which minimises the risk of lost product through contamination.

**SPX Flow Technology
Australia Pty Ltd**

Contact info and more items like this at wf.net.au/V627

Inline freezing system

The Starlite Hybrid Tunnel is a versatile multi-belt system that combines fluidised bed and airflow technologies. The multiple level conveyor belts can operate at different speeds depending on product requirements. The system provides an accessible upgrade from static blast freezing to continuous inline individual quick freeze (IQF) processing. The system is flexible and can be adapted to glaze, harden, chill, freeze or thaw a wide range of food products including seafood, meat, poultry, bakery, dairy products, fruit and vegetables.

The tunnel can be designed for site assembly or as a package under the range. Single, twin or triple belt systems can be incorporated in designs, with horizontal or vertical air flow installed as appropriate for the product/s destined for the system.

The hygienic stainless steel system is suitable for processing products such as vegetables, meat, fish fillets and other processed items including cooked and crumbed product.

Milmeq Pty Ltd

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Temperature control hose range

The Huber Kältemaschinenbau product portfolio includes temperature control hoses with smooth internal walls which are claimed to improve the flow

characteristics and thermal transfer.

Compared to traditional hoses with fluted internal wall, these hoses accelerate the heating and cooling processes, the company says. Tests with different reactor systems at Unistats have shown a reduction of the heating and cooling times of up to 30%, depending on the application.

The insulated hoses can be used with operating temperatures of -60 to +260°C. They are available in lengths of 100, 150, 200 and 300 cm. By means of connecting threads on both ends (choose from M24/30/38 x 1.5), the hoses can be coupled directly to reactor systems, autoclaves, synthesiser or distillation units.

Palomo Pty Ltd

Contact info and more items like this at wf.net.au/W416

Centrifugal pump range

Evoguard pumps from Krones are single-stage, normal-priming, hygienic centrifugal pumps.

The quality assurance system applied to the Evoguard series of pumps corresponds to Krones' quality control concept, with batch tracking provided for each component.

The pumps are suitable for delivery flows of up to 100 m³/h, delivery heights of up to 80 m and operating pressures of up to PN 16.

According to the company, accurately designed flow paths, with all dead spaces eliminated, mean that the centrifugal pumps provide uniform and gentle delivery of the product.

Krones says the pumps' service routines have been minimised in order to reduce both the time and manpower required for their cleaning and maintenance, minimising production interruptions.

The company developed a new interface with the motor, plus a seal concept that reportedly maximises dependability even when exposed to tough process conditions.

The pumps have been designed in compliance with the EU Machinery Directive 2006/42/EC. The TÜV SÜD technical inspectorate conducted the requisite design examination, including pressure tests, safety tests, checking the pumps' mechanical strength, etc.

Seal replacement in the product compartment can be carried out without the need for special tools. Setting of the gap dimensions is easy and likewise requires no special parts.

JL Lennard Pty Ltd

Contact info and more items like this at wf.net.au/V817

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Trans fat alternative – vegetable oils structured with low-calorie sugars

The low-calorie sugars mannitol and sorbitol have been used as a structuring agent to transform vegetable oils into semi-solid 'structured oils'. This technique could be used to provide alternatives to trans fats which have been linked to coronary artery disease, obesity and diabetes.

Structured oils are oils are not new - a classic example is the conversion of vegetable oil into margarine. Icings and confectionery products also use quantities of semi-solid oils and, currently, trans fats are frequently used in these products. Now it is possible that the research conducted by The City College of New York will give formulators an alternative to trans fats.

The team, led by Professor of Chemistry George John, tested two sugar alcohol-based gelators, mannitol dioctanoate (M8) and sorbitol dioctanoate (S8), as structuring agents for four refined vegetable oils: canola oil, olive oil, soybean oil and grape seed oil. Both gelators are amphiphiles, molecules that are attracted to water and fats, and consist of two octanoic acid chains (C8) appended to a sugar alcohol molecule.

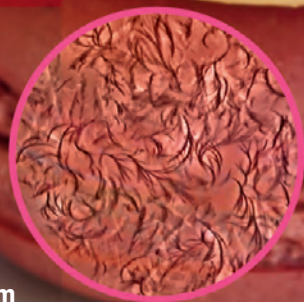
"We have demonstrated the first sugar-based thickening agents for oil," said Professor John, whose previous investigations into the use of amphiphiles to solidify oil in the presence of water demonstrated their potential use in oil-spill clean-ups. He added that the two agents meet both Food & Drug Administration and GRAS (Generally Recognised as Safe) safety specifications, so they can be used for food processing.

Both M8 and S8 demonstrated excellent gelation tendencies for all of the oils that were tested, and the gels remained stable for several months. When mixed with the oils, the gelation agents self assembled into three-dimensional crystalline networks that encapsulated the oils in liquid stage. Optimal gelation was achieved at structuring agent concentrations between 3 and 5%.

However, some differences between the two agents were reported. For example, mannitol gels were opaque in appearance while those made with sorbitol were translucent. That was because M8 yields a more densely packed network while the network of S8 gels consisted of needle-like microcrystallites.

Mannitol was found to be a more efficient gelator, producing stronger gels. However, Professor John pointed out that sorbitol-based gels, which have finer structures and appear more translucent, would be better suited for specific applications. "The multifunctionality and tunability of sugar-based gelators presents opportunities to develop next-generation oil thickeners," he added.

The findings have been published in the *Journal of Agricultural Food Chemistry*. 



Ultrasonic level sensor



Dwyer Instruments has announced the Model ULSL Ultrasonic Level Sensor. The product provides non-contact, continuous ultrasonic level measurement of fluids for applications up to 5.5 m.

Ultrasonic technology paired with automatic temperature compensation provides accurate measurements in almost all conditions.

The unit has a blind zone of no more than 20 cm and a beam width of no more than 76 mm, making it a suitable choice for small tank and container applications.

The product has fail-safe logic that is easily configured to custom applications via free software, removing the need for target calibration. Using the software, the device can be programmed to transmit an output signal.

Additionally, the software allows for the adjustment of the four relays, suitable for control applications. The rugged design comes with an IP68 (NEMA 6P) submersible enclosure rating to ensure a long-lasting unit.

Dwyer Instruments (Aust) Pty Ltd

Contact info and more items like this at wf.net.au/W340

Food-grade silicon spray

Mr Clearco Food Grade Silicon Spray is formulated for food packaging and processing areas.

The product prevents food products from sticking to conveyors, freezing trays, ovens, baking tins, evaporators, cooking coils, chutes, bins and other surfaces. It keeps material moving and stops the adhesion of greases and oils. When sprayed on filler tubes and spray pumps, it prevents sugar build-up, which can lead to equipment failure.

The spray allows cellophane, pilofilm and vinyl polyethylene to move freely over sprayed surfaces and prevents food products from sticking to labelling machines when sprayed on the rails, belts, stamps and grip fingers. It can also eliminate carbon build-up on sealers.

Mr Clearco spray is acceptable for use in meat, poultry and other food processing sectors. Certified by NSF International, this H1 formulation (approved for incidental contact with food for use in food processing areas) also meets FDA 21 CFR requirements. It is halal/kosher approved.

The spray contains no hexane or acetone. According to the company, it is easily removed during clean-up of equipment.

Anglomoil Superior Lubricants

Contact info and more items like this at wf.net.au/W039



Understanding Allergen Labelling Training

What is VITAL 2.0?

Voluntary Incidental Trace Allergen Labelling (VITAL) is a tool developed by the Allergen Bureau. This tool provides a risk-based methodology for food producers to use in assessing the impact of allergen cross-contact and to identify appropriate allergen precautionary labelling.

Why use VITAL 2.0?

The use of precautionary labelling on food products such as 'may contain peanuts' or 'made in a facility that also processes nuts' is confusing for the allergic consumer. The VITAL tool uses scientific calculations to determine the risk of cross-contact allergens, which is more meaningful to consumers.



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Courses are available across Australia:

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Carrot top and debris remover

The Wyma Top Remover Hedgehog removes carrot tops, soil and other debris from the line. Green carrot tops, debris, leaves and/or grass are separated from the carrots or other produce by rubber fingers on the belt.

Carrots slide down the fingers while waste is carried up and over the head drum. The Top Remover Hedgehog is predominantly used for carrot lines, but is also effective with other types of produce where tops and/or grass is a problem.



The Wyma Horizontal Hedgehog is used to remove dirt, roots and other vegetation from round produce - primarily potatoes.

It is typically positioned near the beginning of a processing line. Additional equipment such as legs and chutes may be needed to successfully position the Hedgehog and guide produce on and off the machine.

Once separated, the waste can be accumulated in a waste bin or conveyed away from the Hedgehog on a waste conveyor.

Wyma Engineering (NZ) Ltd

Contact info and more items like this at wf.net.au/V972

X-ray inspection systems

The Eagle Pack 550 PRO and 430 PRO safeguard bulk packaged products, while their fat analysis tools provide accuracy for meat processors. Both systems enable accurate identification and removal of foreign bodies in large-packaged food. In addition, the two systems offer quality measure-

ments such as mass, missing item, fill level and premium detection. The 500 PRO X-ray inspection system is suitable for users with mid- to large-sized bulk packaged food items such as cereals, rice, flour, sugar, potatoes, fruit and vegetables. The system has an enhanced graphical interface, high-speed imaging, increased contaminant detection, on-screen self-diagnostics, full multiline and multiview capabilities and dynamic belt adjustments. The system gives users the option to integrate material discrimination X-ray (MDX) technology into the X-ray system if desired. MDS enables users to detect and remove previously undetectable inorganic contaminants such as glass shards, rocks, rubber and plastics in applications where high levels of product density make X-ray images busy and difficult to interpret.

With Eagle SimulTask image processing software and dual energy technology, the system identifies unwanted foreign bodies within the packaged product, removing any contaminated items from the processing line.

The 430 PRO is capable of inspecting a wider variety of larger packages than its predecessor while retaining the same machine footprint. Users can scan products up to 177 mm h and 257 mm w.

With a belt width of 430 mm, the system is suitable for short, flat packages as well as multicompartment trays, bulk packaged goods and cups used in thermoform, fill-seal applications. The system gives high-speed imaging for up to 120 m/min.



Food Processing Equipment Pty Ltd

Contact info and more items like this at wf.net.au/W131

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Not too wet, not too dry, but just right

Whey powder production is a complex and energy-intensive process. Controlling the moisture levels precisely is key to keeping production flowing smoothly.

"Too high a water content causes stickiness of the whey powder that can disrupt or even stop the production," said Antero Ylitalo, production manager at the Valio whey powder factory, one of the largest production plants in Finland. "On the other hand, if the powder is too dry it generates dust and uses excess energy." The moisture content of the product is set via the spray dryer in the final stage of the production line.

"The critical thing is to be able to control the spray dryer's load and the hot air streams in an optimal way. We needed to keep the moisture content of the final whey powder product very close to its target value regardless of the process conditions, whilst taking into account the dynamically changing multiple process constraints," said Ylitalo.

To precisely control moisture levels, an APC solution was implemented at the plant consisting of two tools included in the Neste Jacobs NAPCON Suite: NAPCON Indicator calculates the material and energy balance information and sends it to NAPCON Controller, the multivariable model predictive control software package which is optimised for control of processes with cross-dependencies.

The APC solution automatically controlled the process, increasing the factory's production by 10% without the company having to invest in any hardware or use more energy in the process. In fact, the improved process control allowed for an increase in the average moisture content. At the same time, the risk for system downtime due to the bag filter clogging was reduced.

"We considered several APC providers but became convinced of Neste Jacobs' expertise and the features of the NAPCON Suite Technology. We are currently planning to implement APC technology also in other production plants and hope that we will be able to continue the good cooperation with Neste Jacobs in this area," Ylitalo said.

Neste Jacobs completed the Valio project in only three months from project initiation, according to Keijo Yli-Opas, chief application engineer at Neste Jacobs.

"An important factor was that there were no process downtimes due to installation and commissioning of the NAPCON Suite software. This is essential for customers who strive to improve their production plants," Yli-Opas said. The NAPCON Suite is well suited to processes with complex behaviour. "In fact, it is applicable in most fields of food industry, but it gives the best results when applied to continuous processes such as the whey powder factory," Yli-Opas said. In addition to the APC solution, the Valio project also included an Open Process Control Unified Architecture (OPC UA) connection between NAPCON Suite and Valio's process control system. Neste Jacobs provided full engineering and implementation services, plus client training.

"One thing that considerably sped up the project was that it included a remote telecom connection between the process

and our engineers. It made it possible to work on the project from a distance. The connection also provides a solid platform for maintenance services," said Yli-Opas.

Neste Jacobs

www.nestejacobs.com



Food grippers for automated environments

The Adept Technology SoftPIC food gripper has been designed to enhance food processors' efficiency and yields. The grippers enable gentle, hygienic food handling in very fast automated production environments. The SoftPIC grippers come in several models, which can be swapped out in less than two minutes, to accommodate lines that package multiple products or handle more than one packaging size.

Designed for use with Adept Quattro and Cobra robots, the grippers and graspers enable fast, accurate and hygienic transfer of product in both primary and secondary food packaging opera-

tions. Made of soft silicone approved for use in the food industry, SoftPIC grippers conform to the shape of the product or package, helping the system achieve gentle handling at high speeds even when processing randomly presented, non-rigid, wet and irregularly shaped food products. Primary packaging applications include processing raw protein, fruits and vegetables, and bakery items. Secondary packaging applications include configuring bags, pouches, containers and clam shells in a variety of patterns.

Walls Machinery Pty Ltd

Contact info and more items like this at wf.net.au/W588

Heat exchanger unit

The Tetra Vertico heat exchanger unit from Tetra Pak uses a coiled monotube design instead of the traditional tubular and scrape heat exchangers. According to the company, the equipment offers users versatility and efficiency in heating and cooling a range of prepared food products, including those with low or high viscosity.

The company says the unit's design offers greater processing capacity of high-viscosity products compared to traditional heat exchangers. It reportedly reduces system volumes and holding times by up to 20% when compared with concentric heat exchangers.

The EHEDG-certified unit can reduce product losses by up to 6% compared to concentric heat exchangers, the company claims, and provides more gentle mechanical treatment, making it suitable for foods with large particles.

The unit has been designed to meet high hygiene standards and optimised CIP and maintenance processes.

Tetra Pak Marketing Pty Ltd

Contact info and more items like this at wf.net.au/V984



Lubrication sprays with detectable caps and nozzles

Wells has launched the range of Detex Foodlube sprays. The sprays come with a cap and nozzle which are both metal and X-ray detectable.

Should the cap or nozzle accidentally become a foreign body in the production process, it can be easily identified by the inline metal and/or X-ray detection equipment before the sprays leave the plant.

The food-grade lubricants are non-toxic and come with complete MSDS. They are available in three main lubricant types: WD Spray, Chain Spray and a general-purpose lubricant.

They offer a wide temperature tolerance, good corrosion resistance and good load-carrying capacity. According to the company, they are safer than other food-grade lubricants due to the detectable cap and nozzle.

WR&D Wells Pty Ltd

Contact info and more items like this at wf.net.au/W418



There are 180 Type 8681 Control Heads in the Bel Cheese plant. The head is designed to fit all hygienic ball, butterfly, single, and double-seat hygienic valves - so Bel Cheese simplified things, using it run-of-site on production and service lines. It is the sole head required for any dairy, food, or other hygienic processing plant. Call now, for a hands-on demonstration of the 8681 Control Head.

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FLUID CONTROL SYSTEMS



Meeting the huge demands on industrial packaging

Smaller carbon footprint, sustainable, minimal resource input, strong and cheap

Electricity and resources are becoming more expensive and the shortage of freight capacity is pushing up the cost of transport. So how can high-grade packages be marketed under these difficult conditions without appreciable price rises? The manufacturers of industrial packages are showing that this is possible - by using low-cost recycled materials, participating in the development of logistics strategies and generating their own renewable energy.

Manufacturers of industrial packages are being hit particularly hard by price rises resulting, in part, from rising energy costs. Their containers, pallets, technical components and work-piece carriers are usually made of plastics. Although they are light and robust, a lot of energy is required for the injection-moulding of plastics packages. Furthermore, the manufacturers need granulate for this, which is in big demand and no longer available in limitless quantities.

"In the long term, this not only means increases in the price of all load carriers, but availability will also become a crucial factor sooner or later," says Udo Schwabe, marketing manager of the German branch of the Swiss Utz Group, a container specialist. Rising transport costs are exacerbating the situation. The problem is that large industrial packages on their way to the customer by trucks and train take up a good deal of space. "In this situation, cost savings are pretty much out of the question," Schwabe claims.

Users are becoming more demanding

While the financial leeway for users is declining, users are becoming more demanding. Whatever the sector - the wholesale trade, food industry or pharmaceuticals industry - they all want to shrink their carbon footprint and are insisting on sustainable packages produced with minimum resource input but without compromising on strength. Companies are also resorting to highly automated conveying technologies to ensure trouble-free materials flow. And this raises the bar significantly for packaging.

"Like other packages, industrial packages also have to protect the product while using less material. Less material also means less space taken up by the packaged product," explains Vera Fritsche, specialist of the Food Processing and Packaging Machinery Association in the German Engineering Federation.

In addition, the containers have to become identifiable so that they can be controlled by different logistics systems. "Coding plays a very important part here, particularly as regards the traceability of the product over the entire distribution chain as well as the entire in-plant logistics," Fritsche explains. Novel in-mould labelling technology is making rapid inroads, as it produces durable and easy-to-clean labels, although it is more elaborate and more expensive than the currently widespread barcodes. These are simply stuck onto the packages in a downstream cycle, while in-mould labelling is integrated in container production. Pre-printed labels are inserted in the injection mould and fuse with the plastic melt on its injection into the mould.

Packaging suppliers are also expected to offer space-saving containers. "Freight and storage space is becoming not only scarcer, but also costlier," Fritsche continues. Companies pass on the pressure to the packaging industry in the form of demands for volume-reduced containers, be they folding, conical or stackable/nesting.

The biggest challenge facing packaging manufacturers is to deliver the required innovations without loss of quality and at as little extra cost as possible.



If large intermediate bulk containers are to be filled with foods, high standards of hygiene apply in production. (Image: Schuetz)

No package like any other

Using extra-safe packages to keep the customer coming back is the approach pursued by the Schuetz packaging company in Germany. Its innovations include Foodcert packages for the food industry, which are based on the latest industrial standard FSSC 22000 (Food Safety System Certification). This standard calls, among other things, for high cleanliness precautions during production to minimise the risk of contamination. Schuetz also manufactures its Foodcert packages exclusively just in time, ie, to meet actual demand in response to individual customer orders. Long storage and contamination are thus avoided.

“Schuetz is the first manufacturer of intermediate bulk containers and drums worldwide to subject all of its production plants to this audit,” the company claims. Intermediate bulk containers (IBCs) are among the most widely used large packages. These cubic plastic containers are used in industry mainly as collection and transport containers.

Another Schuetz strategy to attract customers in the long term is sustainable package solutions. The company’s latest developments in this area include a plastics IBC pallet that is made by reprocessing used IBCs. Schuetz is thus killing two birds with one stone. It is firstly satisfying growing demand for carbon-footprint-reduced and ecologically produced, recyclable products. And, secondly, by reprocessing scrapped IBCs, Schuetz is making itself less dependent on expensive supplies of raw materials. And without loss of quality, the company insists, for the recycled material is highly resistant to chemicals, deformation and damage, Schuetz claims.

One of the focuses of Utz is also on the sustainable, cost-effective production of its plastics load carriers. At the company’s own recycling centre, boxes and pallets are processed into granulate. Alongside this, the company is developing




Raw materials for plastics are in big demand and expensive. More and more often, materials are being recycled into containers and pallets for a new lease of life. (Image: Schuetz)

new packaging materials like wood-plastic composite as well. To supply itself with eco-friendly electricity, Utz has also invested in its own photovoltaic installation and a combined heat and power plant. “These are initially large investments, but they will make us more independent of electricity exchanges and government price interventions in the long term,” Schwabe explains.

In addition to sustainability and cost reduction, Utz accords a key role to flexibility in production and to delivery readiness. “One thing is certain: the search is on not for the universal solution for multiway packages, as was perhaps on the agenda a few years ago, but for solutions geared to specific industries and customers,” says Schwabe. In cooperation with meat processors and the global standards organisation GS1, it has thus developed a new, e-performance meat container whose enhanced base geometry and corner design makes it extra strong. It also bears an in-mould label on all four sides for easier identification within the supply chain.

For a chemist’s chain of stores, Utz has also developed a transport dolly that can be moved on casters without great effort to its in-plant destination. The basis of this dispatch tower is a dolly that has four recesses on its upper surface to accommodate the casters of the next dolly. The dollies can thus be stacked one on top of the other to save space in the warehouse. Utz also serves large industrial enterprises.

So that it can supply industry with its many packaging solutions, Utz is constantly investing in the extension of its machine park. The Swiss production plant in Bremgarten alone now has 29 injection moulding machines. “We don’t have any products that would warrant a mono-product system,” the company claims.

There is plenty afoot in the packaging sector and you can see the best in the world at interpack 2014 in Düsseldorf from 8 to 14 May 2014 - www.interpack.com. 





Food-grade waterproof chain lubricant

STELLA Food Grade Waterproof Chain Lubricant is a waterproof, tacky chain and conveyor lubricant that is NSF H1 registered for use where incidental food contact may occur.

Suitable for use in the beverage industry due to its waterproof formulation, the lubricant is suitable for most chain applications operating up to 200°C in food processing facilities.

The lubricant penetrates to the links and pins, which can reduce wear and extend chain life. Adhesive additives ensure that the product is non-drip and no-fling, providing lasting lubrication.

The product's adhesive characteristics ensure a high degree of water resistance and protect parts from corrosion and rust. It has a wide temperature range.

Food Grade Oils

Contact info and more items like this at wf.net.au/W357

Cantilever for storing extra-long items

Dexion's Clearspan Heavy Duty Cantilever has been designed to support items that are heavy, long and cumbersome to store.

With no front uprights to impede access, the cantilever enables fast and direct retrieval of stored products. It is designed to accommodate items that cannot be palletised.

A hot-dip galvanised option is available for outdoor applications. The cantilever can be used by a variety of industries, including aluminium fabricators, steel and timber merchants, plumbing and hardware suppliers, furniture wholesalers and garden suppliers.

The cantilever is equipped with columns that are bolted to both sides of either single- or double-entry bases and are also directly anchored to the concrete floor via a heavy-duty baseplate and heavy-duty stud anchors. This dual fixing arrangement provides maximum base fixity, which minimises the rotation and overall deflection of the column and also provides greater resistance to fork truck impact.

Rectangular hollow section is used for the arms, rather than the commonly used open section, providing additional stability of every arm. A pivoting arm allows the arm to shift upwards if impact occurs during loading and unloading. This protects the arm from damage and prevents structural damage to the system.

Arm locking pins are used to restrain the arm onto the column. A lynch pin is used as a safety lock to secure the arm and locking pin to the column. The cantilever has turnbuckle bracing for lateral stability, which allows for the readjustment of the structure if required.

A range of accessories is also available, including deck support brackets and tube support channels.

Dexion Citiport

Contact info and more items like this at wf.net.au/W372



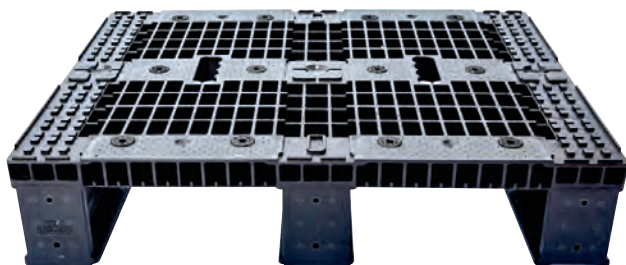
Store-ready plastic display pallet

Loscam has released a plastic display pallet with a smaller footprint that is store-ready. The company developed the pallet in response to the increasing number of goods moved directly to the retail floor in a store-ready format.

Ergonomically designed to minimise the risk of OHS issues, the pallet is claimed to carry more weight than existing display pallets. The pallet is designed and manufactured in Australia, mitigating the environmental impact of international shipping.

Loscam Ltd

Contact info and more items like this at wf.net.au/W060





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Food-grade positioning belt

In semi-automatic food processing lines, belts are often marked to indicate the correct positioning of products for further processing. These markings are usually printed on top of the belt with ink and are subject to the influences of food, scrapers and cleaning agents.

Ammeraal Beltech's Permaline U2 positioning belt has full EU and FDA food contact approvals. The pre-printed positioning template on the belt's surface is produced to each customer's specification.

The custom-printed belt layout is highly visible and indelible, even in the splice area. It is top coated with a transparent, wear-resistant, food-grade layer that protects the food from the print. According to the company, the protected print will not wear off even when flexing over small pulley diameters and fixed knife edges.

Any design can be printed on the belt, including full-colour photographs. The belt can be supplied endless or prepared for on-site splicing, without the need to later manually add drawings over splice areas.

The protection layer can be scraped and cleaned without damaging the print. In addition, the matte finish allows for less flour use, the company claims.

The belt has antistatic properties, a low noise level and its matte finish prevents overhead light reflection. Multi-colour or full-colour shapes, graphics or images are supported.

Ammeraal Conveyor Belting P/L

Contact info and more items like this at wf.net.au/W432

Breathable pallet wrap

Numerous products rely on aeration. Beer and fruit juice is packed hot and, wrapped with conventional stretch wrap, can be prone to condensation issues. Other products like dairy, ice-cream and meat need cooling/deep freezing before transportation.

Air-Flow is a macro-perforated stretch film structure and has been developed especially for products that need to 'breathe'. The product is said to deliver reduced packaging costs and lower waste, eliminating condensation while allowing ventilation.

The film fulfils the need to tightly wrap goods on a pallet while giving the advantage of aeration. It is forklift friendly and has no reduction in width, plus good grip and visibility.

Australian Warehouse Solutions Pty Ltd

Contact info and more items like this at wf.net.au/W300



Metal detector head

The IQ³ metal detector head from Loma Systems has been awarded Atex21 certification, enabling in-processing metal detection in areas where a potentially explosive atmosphere exists. The detector head is available as a complete system or as a retrofit.

Atex21 compliance was achieved using a combination of low-temperature electronics and advanced sealing techniques.

The IQ³ metal detector uses variable frequency technology, which allows the operator to auto-select the correct frequency. The system also includes an Automatic Product Learn System, enabling it to calibrate and retain the characteristics and settings for up to 100 product lines.

The head can withstand harsh operating environments where rigorous washdown procedures are required. It includes an onboard performance validation system that tests performance at preset intervals, helping to create a detailed audit trail for each production run.

Inspection Systems Pty Ltd

Contact info and more items like this at wf.net.au/W361

Multi-axis robot energy chains

The Chainflex CF Robot family of multi-axis robot energy chains transfers energy and data reliably in dynamic applications for popular industrial bus systems, including Profibus, CANbus and Industrial Ethernet. The braided shield has an optical coverage of 85%. The pressure-extruded outer jacket is abrasion proof, oil resistant and is made of a flame-resistant, halogen-free PUR mixture.



The twistable PUR motor cables can be supplied in either shielded or non-shielded versions. The damping elements protect the elements as they twist.

The use of high-grade PTFE gliding layers has been continued in order to provide a sturdy basis for the torsion-resistant insulation. According to the company, this enables the product to cope with demanding twisting applications.

The cable has two optical fibre cores, is resistant to oils and UV light and remains flexible in the cold. The FOC cables with high-tensile Aramid fibres and dampers are stranded firmly around the GRP core. The pressure-extruded outer jacket is made of a halogen-free TPE mixture.

The chains are suitable for use in the manufacturing, mining, food and materials handling industries.

Treotham Automation Pty Ltd

Contact info and more items like this at wf.net.au/W417

NEW

Move fragile bulk foods gently, efficiently, dust-free with FLEXI-DISC™ Tubular Cable Conveyors

System can be fed from virtually any new or existing storage vessel or process equipment (Drum Tipper and Bulk Bag Discharger shown), and discharge at a single point, or selectively at multiple points.



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PFD goes from manual to automated with Kronos

As Australia's largest privately owned food services distribution organisation, PFD Food Services prides itself on service and reliability. The company recognises that its employees are its most important asset and so enables its workforce with critical IT capabilities that it believes will ultimately help better serve its customer base.

PFD started using Kronos workforce management solutions deployed in the Kronos Cloud to streamline its business and deliver operational efficiencies. PFD has deployed the Kronos time and attendance application which gives managers access to real-time insights into the company's workforce, allowing them to identify labour trends, manage staff and make more accurate forecasts.

"We have a very dynamic workforce with a diverse mix of people across our sites. This means we are working with complex pay structures, which expose us to the risk of delivering incorrect payments to staff, causing dissatisfaction that could impact the way staff work in our business," said Richard Cohen, chief information officer at PFD.

"We realised we needed a centralised, automated system that would streamline the time management capture process and tightly integrate with our payroll solution. Kronos ticked all the boxes. It was easy to implement, manage and use. It delivers all the benefits we were looking for." PFD says that since implementing Kronos, it has seen significant

improvements in the integrity of the information flowing through the business. It is now able to report faster and more accurately on its labour. Previously manual timesheets, data entry and payroll approvals are now all automated, reducing the resource burden across the organisation and reducing the need for paper timesheets.

"We have seen a 68% decrease in payroll enquiries and 84% reduction in 'outside-of-cycle' pays. The efficiency of the Kronos solution has also meant that when employee numbers grow through acquisition, our payroll team can scale without needing additional headcount as well as being able to support ongoing and new transformational IT projects," Cohen said.

"As the host of the solution, Kronos works closely with us every step of the way. With Kronos, we know we can access the solution anywhere within our environment and also externally if we need to. We also don't need to carry the overhead for hardware and on-site resources that we would have needed to support the application internally. This amounts to an estimated 50% savings as opposed to us managing the application ourselves.

"Turning to cloud was a decision that made sense for us as a business as it is a viable tool at our disposal."

Kronos Australia Pty Ltd

Contact info and more items like this at wf.net.au/W478

Bulk bag filling process system

National Bulk Equipment (NBE) has launched a complete bulk bag filling process system, which includes automated pallet introduction, automated metering of material supply, NTEP-certified precision bag weighing and automated filled-bag accumulation conveyors.

According to the company, the system enables a single operator to process up to twenty 2000 kg-capacity bulk bags/h or 40,823 kg of dry bulk material/h. NBE integrated automation uses a single, menu-driven HMI to centralise system-wide operations, including legacy, upstream material supply equipment. The integrated automation directs all equipment controls, communication, sensing, monitoring and data reporting using UL listed panels built by NBE.

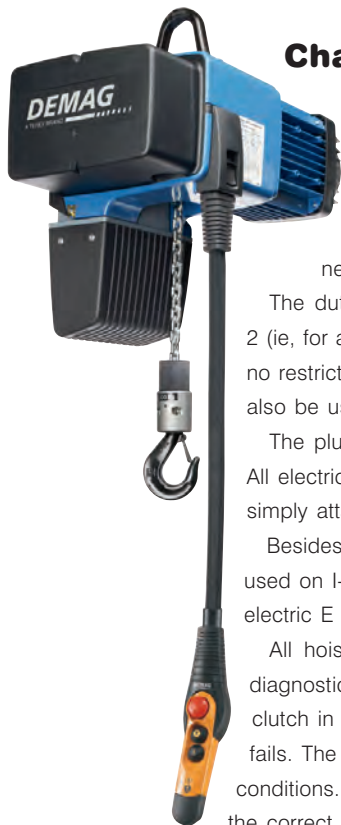
The company says its integrated automation can reduce material loss, increase overall equipment effectiveness and improve labour efficiency and safety. Process line optimisation begins immediately upon the introduction and staging of the first pallet. The cantilevered fill head/bag hanger carriage uses pneumatic actions to bring the fill head and rear bag hooks within the operator's reach, so there is no need for the operator to step or lean into the equipment. The 8 GPM hydraulic carriage easily and safely lifts bag capacities up to 2000 kg. The ergonomic design maintains optimal operator posture for safe and efficient operation.

NTEP-certified weigh systems provide valid, accurate and repeatable weighing of the bags to an accuracy of $\pm 0.01\%$, improving total process efficiency by eliminating reworking of over- and underfilled bags, and reducing material loss.

National Bulk Equipment

Contact info and more items like this at wf.net.au/W090





Chain hoist range

The Demag DC-Com chain hoist range is available in five sizes, for loads weighing from 80 to 2000 kg.

Enhancements to the range have led to an improved FEM classification. According to the company, this has resulted in a doubling of their service life, since all sizes are classified in the next-highest group of mechanisms according to FEM rule 9.511.

The duty factor has also been increased by 50% for its units as of size 2 (ie, for all types that have a load capacity of 160 kg and higher). There are no restrictions for the duty factor at temperatures up to 45°C. The hoists can also be used at ambient temperatures up to 60°C.

The plug and lift connections enable fast installation and commissioning. All electric connections are plug-and-socket design and chain hoists can be simply attached to a trolley by their folding suspension brackets.

Besides operation with the KBK crane construction kit, the units can also be used on I-beam girders. Manually operated U 11 to U 56 trolleys, as well as electric E trolleys are available for these applications.

All hoist sizes are fitted with an elapsed operating time counter and a diagnostics interface. The low-wearing brake is arranged before the slipping clutch in the drive system and is automatically applied if the control system fails. The cylindrical-rotor motor was developed for operation under arduous conditions. The operator can adjust the length of the control cable to achieve the correct ergonomic position, which makes it easy to operate the units with DSC or DSC-10 control pendants. The sizes for load capacities up to 1000 kg are of single-fall design, which minimises abrasion of the chain.

Demag Cranes & Components

Contact info and more items like this at wf.net.au/W224

3-axis load cells

The Interface 3AXX series load cells measure force in x, y and z directions and come in a wide range of capacities from 10 N to 50 kN. Applications requiring higher forces or a large footprint can combine three or four sensors into a large force plate.

The series is claimed to be attractively priced at half the prices of competing load cells. Additionally, Interface is offering a compatible multichannel amplifier that connects directly to the sensor. With mating connectors as a standard offering on both the 3AXX load cell and the multichannel amplifier, setting up a system is plug-and-play.

AMS Instrumentation & Calibration Pty Ltd

Contact info and more items like this at wf.net.au/W021

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Tubular cable conveyor system

Flexicon has expanded its Flexi-Disc line of tubular cable conveyors with the addition of a 15 cm diameter system, which more than doubles the capacity of the company's 10 cm diameter conveyor.

The conveyor is designed for the gentle transfer of friable materials including beans, cereals, coffee, dried fruits, frozen vegetables, grains, nuts, pet foods, seeds, snack foods, spices and teas.

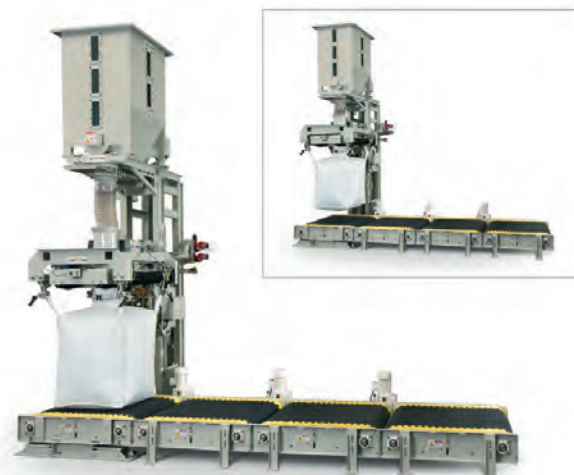
Low-friction, high-strength polymer discs slide materials gently and dust free through smooth stainless steel tubing, which can be routed horizontally, vertically or at any angle, through small holes in walls or ceilings and over long or short distances. The system can be configured with single or multiple inlets that are metered and/or non-metered, and discharges that are valved or open. The cable-disc assembly is pulled through the tubing circuit by a drive wheel at one end of the circuit, and kept taut by an automatic cable tensioner at the opposite end of the circuit.

All housings and ancillary metallic components are of 304 or 316 stainless steel with continuous welds ground and polished to food, pharmaceutical or industrial standards. In addition to galvanised cable, discs are available affixed to stainless steel and nylon-encapsulated stainless steel cable for sanitary applications. Wet or dry cleaning accessories can be quickly attached to the cable to minimise downtime between changeovers, while clean-in-place (CIP) accessories allow automated sanitising of the system.

The conveyor is offered as a stand-alone system in unlimited layouts, and/or pre-engineered and integrated with upstream and downstream equipment.

Flexicon Corporation (Australia) Pty Limited

Contact info and more items like this at wf.net.au/W005



Automated bulk bag filling system

National Bulk Equipment (NBE) has introduced an automated bulk bag filling system which has been designed to ensure extended duty cycles in demanding operating environments. The NBE bulk bag filler is built on a corrosion-resistant, hot-dip galvanised stainless steel and carbon steel structural framework.

Component assemblies, such as the hydraulic and pneumatic systems, are also constructed of stainless steel and have chrome-coated rods and subassemblies that give long-term protection against corrosion and oxidation. Automation controls, system utilities and connectors are hermetically sealed to prevent damage from contact with liquids and material contaminants.

The PLC and HMI enclosures are 304 stainless steel, NEMA Type 4X and are coated with a two-part epoxy finish. They are independently air conditioned to eliminate the build-up of internal condensation. The bulk bag filler offers repeatable operation at rates of up to 13,600 kg/h.

The machine can operate in conditions where ambient temperatures exceed 38°C and relative humidity is 70% or higher. Material throughput accuracy is aided by the NBE NTEP-certified (Cert No 07-108) hang-weigh scale system.

The system provides repeatable weighing to an accuracy of $\pm 0.5\%$ of total bag weight, according to the company. The filler has an automated densification platform that, during filling, directs 3Gs of high-speed, low-intensity vibration to the base of the bag to evenly settle material.

Following the fill and weigh stages, a 2250 kg capacity accumulation conveyor automatically removes filled bags from the filling sequence and stages them for retrieval.

National Bulk Equipment

Contact info and more items like this at wf.net.au/W001



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Flavorite Marketing keeps cool with Brady IPS

When fitting out its new Ravenhall site, Melbourne wholesaler Flavorite Marketing had very particular requirements for its multiple temperature-controlled zones.

The facility includes five two-tier ripening room chambers, two coolrooms, a large packing area, a loading bay and an external refrigeration/electrical plant room. Each area required specific temperature control.

The company engaged Brady Insulated Panel Systems (IPS) for the project based on the company's reputation of producing quality work.

Prior to commencing the work, Brady IPS spoke with Flavorite Marketing management and recommended a complete fit-out system that provided savings in terms of ongoing energy costs. The fit-out includes state-of-the-art automated door systems for operation efficiency, including a true gas-tight seal for the ripening room chambers and a Microban finish on the walls and ceilings to optimise hygiene control. "Flavorite Marketing embraced all these new technologies and today has arguably the most advanced and modern temperature-controlled storage and packing facility in the industry," said Paul Brady, director of Brady IPS.

"We are very proud to say we have successfully completed such a major component of this project."

Cameron Nichol, a director of Flavorite Marketing, says the completed project is "high-class".

"Not only is their workmanship top notch, but they also have innovative design features that have not been seen in Australia before," Nichol said.

Brady Insulated Panel Systems Pty Ltd

Contact info and more items like this at wf.net.au/W261



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Rugged feed screw drives

Bonfiglioli's compact, versatile and robustly engineered range of materials handling drives is particularly suited to application in feed screws, which are typically used for the horizontal transport of cereals like barley, wheat and maize or granular products like soya, grain and cocoa. The screws can be custom engineered for local conditions demanding compact performance in a wide range of ambient conditions.

The company has a range of Trasmital planetary gear units which are widely used in many slow-moving

applications where high output torque is required.

Complementing Trasmital planetaries are F series drives, which typically mount directly on the shaft of the feed screw. Trasmital planetary drives can be combined with A series drives for ultra-slow applications, such as screws for live bottom bins..

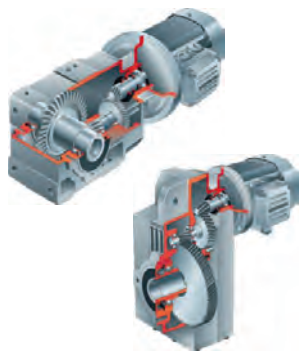
Also widely employed in materials handling is the A series helical bevel drive range, which covers an enormous range of small-to-medium-sized applications.

The highly durable A series - available in nine sizes from 0.9-55 Kw and 150-14000 Nm torque -

achieves its versatility by having a ratio range up to 1700:1 in a single gearbox, with four reduction stages. The series features finite element analysis (FEA) procedures in its design and construction. These allow for lightweight construction while maintaining strength and durability from case-hardened nickel chrome steel gears. Features include high efficiency and low noise. Operating efficiencies are enhanced by the company's high-performance hypoid bevel gear pair, which gives significant energy savings. Low noise gearing is achieved by locating the bevel gear pair at the output stage of the gearmotor. This allows noise reductions significantly below similarly sized traditional bevel helical gearmotors. It allows the A series to conform to the most arduous of mechanical specifications.

Bonfiglioli Transmission Pty Ltd

Contact info and more items like this at wf.net.au/W245



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Crossbelt sorter

The Dematic FlexSort SC3 Crossbelt Sorter is a high-rate, high-accuracy sorting solution for distribution and warehousing operations. Suitable for sorting satchels, pieces, stuffed envelopes, cartons and totes, the sorter uses discrete belt conveyors mounted on carriers in a recirculating loop configuration.



The sorter allows high throughput and precise controlled handling and operational flexibility, along with sustained order accuracy. The sorter cells can be activated anywhere along the sorter loop, making it possible to add and/or move chutes and induction stations, or change the sorter speed without additional hardware installation and commissioning.

The machine's design is based on a common modular platform that is built around standard commercially available off-the-shelf components. This modular platform provides the foundation around which standardised mechanical, electrical and controls components can be configured.

The engineering allows for multiple configurations, enabling users to select the motion drive and power/data options appropriate for the application.

The sorter drive system can be configured with linear induction drive motors (LIMs) or with linear synchronous motors (LSMs). The LSMs operate using 50% less energy than the LIMs. Additionally, cooling fans are not required.

For power and data transmission, the sorter can be configured with either a bus bar with brush contact technology or with non-contact technology. The contact technology uses a power rail and collector brush on every master carrier. The non-contact solution includes IWLAN RCoax cable communication for data and a high-frequency, energised cable for power transmission. It operates with non-wearing parts, resulting in less maintenance.

Dematic Pty Ltd

Contact info and more items like this at
wf.net.au/W061

Rotary feeders

The Aero-Flow Series of rotary feeders is designed specifically for pneumatic conveying of dense materials such as fine powders used in chemical and pharmaceutical processing, food and bakery processing, plastics, and milling. It provides highly efficient, air-assisted, material introduction to pneumatic conveying systems.



The ACS Aero-Flow Series of rotary feeders uses a proprietary, dual-induction endplate design to introduce pressurised air from both endplates into the rotor pockets carrying process material. The high bulk density material, when mixed with air, is more effectively released from the rotor pockets and is more efficiently introduced to the pneumatically conveyed material flow. The Aero-Flow Series dual-induction design speeds the material fluidisation process, improves material consistency and optimises feeder energy consumption when compared to conventional, single-induction feeder designs. Further energy efficiency is provided by an available ACS variable frequency drive to modulate the feeder drive speed and reduce power requirements based on the fluctuating performance needs of the system.

ACS Aero-Flow feeder housings are available in cast iron and 304 or 316 stainless steel; in either 44 or 54 cm heights. They provide optimal service in applications with pressure differentials up to 15 psig and elevated temperatures to 260°C. The Aero-Flow Series 10-vane rotor is precision machined with bevelled vane tips and sides. Other rotor configurations include Teflon-coated and adjustable tips. Adjustable rotor tips are available in hardened steel or stainless steel. Rotor housing interior surface coating options include hard chrome, tungsten and Teflon.

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Flexicon conveys Chocolate Dodger to success

Following the success of its Jammie Dodger biscuit, Burton's Biscuit Co decided to market a Chocolate Dodger version comprising chocolate cream sandwiched between two chocolate biscuits. The biscuit producer engaged Flexicon to install a batching/blending system consisting of flexible screw conveyor that transports cocoa powder to a horizontal paddle mixer and a pneumatic conveying system that delivers finely milled sugar to the mixer. Flexicon designed both conveyors to overcome potential challenges associated with the materials.

Cocoa powder has a bulk density of around 560 kg/m³. The non-free-flowing powder has a tendency to pack and cake. Being hygroscopic, it also forms deposits on conveying equipment surfaces, particularly if exposed to moisture. It also fluidises readily and generates dust.

To handle the troublesome powder, Burton's specified two Flexicon flexible screw conveyors with screw geometry suited to the application.

The chocolate cream recipe calls for 15 kg of one type of cocoa powder and 25 kg of another, both of which are manually dumped from 25 kg bags into a twin floor hopper that keeps them separate. The hopper consists of two narrow hoppers joined at a centre line, from which a hopper lid hinges to cover the opening of one hopper or the other.

A vacuum extraction system connected to both hoppers withdraws any fugitive dust generated from dumping activities. The hoppers are also equipped with an electromagnetic vibration system that promotes flow of material into the inlets of flexible screw conveyors that transport cocoa to the mixture. Each conveyor consists of a stainless steel flexible screw, housed in a 3 m long, 90 mm OD plastic tube that is inclined at 70°. From the discharge spouts of both conveyors, material flows to a common wye fitting and then through a single downspout that discharges into the mixer.

The screw is driven by a 2.2 kW motor located above the discharge point of the tube, thereby preventing powder from contacting drive seals.

The screw is engineered with special geometry to minimise radial forces and maximise longitudinal flow of the material to prevent packing of the compressible material. As the flexible screw rotates, it self-centres within the tube providing clearance between the screw and the tube wall to minimise grinding or heating/melting of the powder. The conveyors are started and stopped by the PLC to move 15 kg of one cocoa powder, and then 25 kg of the other, to the mixer. Each conveyor moves material at the full feed rate

of 1.85 m³/h, and then steps down to trickle feed rate before stopping once the accurate target weight is gained by the mixer.

Unlike cocoa powder, the sugar powder needed for the process is free-flowing (when dry) and is sourced from a distant plant location, leading Burton's to specify a Pneumati-Con pneumatic conveying system, also from Flexicon Europe.

The plant receives sugar in granulated form, which is milled to a fine powder, and then fed from a hopper through a rotary valve into a 200 m long, 75 mm diameter stainless steel pneumatic line. Powered by a blower located upstream from the sugar intake point,

the pneumatic conveyor has a capacity of 2110 kg/h. Since the fine powder will readily agglomerate and block the line in the presence of moisture, a key requirement is to keep the sugar warm and dry - achieved by means of a dehumidification system. Dean Miles, Burton's engineering projects manager, points out that this is especially critical because the pneumatic line contains four 90° elbows and four 30° elbows where plugging would otherwise occur.

A 915 mm diameter filter receiver separates the sugar from the airstream, before it enters a 500 kg capacity receiving hopper, located above the mixer. Four air-jet fluidisers in the bottom of the hopper promote the flow of material as it is fed into the mixer by a rotary valve under PLC control, according to weight gain input provided by the mixer's load cells. Just before entering the mixer, the sugar passes through a 915 mm diameter vibratory screen with 1.0 mm openings, which retains oversize material. Once palm oil and liquid chocolate are added to the batch, the PLC cycles the mixer, opens a discharge valve, and pumps the chocolate cream blend to the sandwich production line.

Initially, Burton's ordered the pneumatic system, which was the more critical of the installations because of the distance the sugar had to be conveyed. "Flexicon started the installation two months after we ordered it," said Miles.

"At that point we had confidence in the company, so we ordered the flexible screw conveyor system and started producing the chocolate cream and Chocolate Dodger sandwiches two months later. Flexicon met the lead times we were dealing with and their price was competitive." The equipment is inspected only once a month and requires minimal attention, Miles says. "We run residual material out at the end of every production run and wipe down the hoppers and connecting pieces for the delivery pipework and screw feeder. If we need to clean a flexible tube we can take it off and clean it in 10 minutes," Miles said.

"It's the right kind of system for us and it works well. We can load it up and leave it to look after itself."

Flexicon Corporation (Australia) Pty Limited

Contact info and more items like this at wf.net.au/W169





Tube lifter for 50 kg loads

Schmalz' series of tube lifters feature one-hand operation for frequent, fast, ergonomic movement of light goods. The recently announced JumboFlex 50 offers a maximum load of 50 kilograms and with the JumboFlex 35, the company offers handling solutions for every small load up to 50 kilograms.

The JumboFlex 50's operator handle has been ergonomically engineered and adapted for the heavier load and the redesigned button can be controlled with either one or two fingers. The larger soft touch inserts on the control handle aid precise and safe handling of loads of up to 50 kg with one hand. Other features of the JumboFlex 35 tube lifter, such as the intuitive operation for right- or left-handed users and the precise control of lifting speed, have been retained.

Different suction pads are available for various applications. The suction pads can be replaced easily, thanks to the standard integrated quick-change adapter.

Work pieces can be picked up from the sides, which expands the range of applications. The suction pads, which can be swivelled by 90°, then automatically bring the load into the horizontal position after handling. The tube lifter is also available in a special A2 (food grade) version for use in the food and beverage industry.

An electrical pump with a suction rate of 67 m³/h (50 Hz) is responsible for vacuum generation. With the optional radio remote control SRC, the operator can switch the vacuum generator on and off directly on the operator handle. The maximum lift speed is 1 m/s.

The continuously rotatable lifting unit, which is attached to the crane system, ensures optimal handling and a high level of flexibility.

Millsom Materials Handling

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Chocolate authenticity test developed

Despite shelling out top dollar for premium chocolate, connoisseurs have historically had no way of determining - aside from their taste buds, of course - whether the chocolate they're eating is the good stuff, or just a good fake. However, scientists have developed a method to authenticate the varietal purity and origin of cacao beans to ensure that the chocolate inside matches the country of origin labelling outside.

The temptation to cash in on the multibillion-dollar premium chocolate industry leads some unscrupulous souls to adulterate premium cacao beans with lower-quality beans along the supply chain. Researchers can conduct genetic testing to determine the authenticity of other crops such as cereals, fruits, olives, tea and coffee, but these same methods are not suitable for cacao beans.

Along with his team, researcher Dapeng Zhang wanted to address this issue to give consumers greater confidence in the products they're buying. The team identified a small set of DNA markers called SNPs (and reportedly pronounced "snips") that comprise the unique 'fingerprints' of different cacao species. The technique works on single cacao beans and can be scaled up to handle large samples quickly.

The researchers say the ability to authenticate premium and rare cacao varieties will encourage growers to maintain cacao biodiversity, rather than depend on trees that are most abundant and easiest to grow. "To our knowledge, this is the first authentication study in cacao using molecular markers," the researchers said.

The research is described in the American Chemical Society's *Journal of Agricultural and Food Chemistry*.

Better wheat, barley and maize through genome research

Roche has released SeqCap EZ Exome Designs for the target enrichment of the wheat, barley and maize genomes. These agriculture exome designs provide researchers a cost-effective and easy-to-use alternative sequencing method beyond whole genome sequencing.

The Wheat Barley Exome Consortium (WBEC) worked closely with Roche NimbleGen to develop both the Wheat and Barley Exome Designs for public use. The WBEC is a collaboration of researchers from the University of Liverpool, Leibniz Institute of Plant Genetics and Crop Plant Research (IPK), James Hutton Institute, Kansas State University, University of Minnesota, University of Saskatchewan and BIOGEMMA.

The Maize Exome design resulted from the collaboration between Roche NimbleGen and researchers at Iowa State University and the University of Minnesota. It is based on a comprehensive collection of the exon content from a range of North American lines of maize and maize relatives from the *Zea* genus.

"Using NimbleGen's target enrichment design in a maize GWAS study allowed us to focus our sequencing resources on the exome, which proved to be a more rapid and cost-effective method to identify trait associated loci over traditional detection methods," said Dr Patrick Schnable, Distinguished Professor and Director, Center for Plant Genomics at Iowa State University.

The advancement of plant genomics research is critical to agriculture, energy, forestry, environment and many other fields globally, where plant genomes bring a unique set of challenges to researchers. Whole genome sequencing, a commonly used approach, has been less than efficient for many applications as a cost-prohibitive and time-consuming process. With the availability of these crop exome designs, Roche NimbleGen is providing the agricultural research community an efficient tool for in-depth analysis of complex traits in genomes that are relevant to potential breeding programs.



Life Technologies product gains Australian Government approval

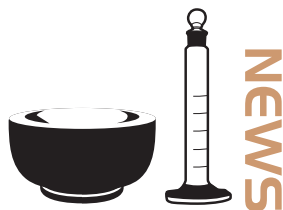
The Department of Agriculture has officially approved Life Technologies' MicroSEQ Real-Time PCR workflow as an Approved Test Method to detect pathogens in export meat and meat products. When exporting food, many products are subject to testing as part of the trade arrangements between Australia and importing countries. Microbiological testing that is agreed upon by both exporting and importing countries following government-approved methods is essential to ensure the quality and compliance of the exported products. The MicroSEQ Real-Time PCR workflow is used to detect three pathogens: *Escherichia coli* O157:H7 (in raw ground beef and beef trim), *Salmonella* and *Listeria monocytogenes* (in meat and meat products). The approved total workflows include use of PrepSEQ Rapid Spin Sample Preparation Kit or Automated PrepSEQ Nucleic Acid Extraction Kit, MicroSEQ Detection Kits and 7500 Fast Real-Time PCR Instrument, guided by the RapidFinder Express Software to gain data.

"We believe that this approval warrants our dedication as a global leader to food safety," Life Technologies Director of Animal Health, Food Safety & Environment, Asia Pacific and Japan region Gerard Davis said.

"We are committed to offering integrated solutions to provide faster, accurate and innovative technologies to food producers, service labs and governments in every region across the globe."



Testing





Wireless humidity and temperature data loggers

Vaisala Humicap Wireless Humidity and Temperature Data Loggers HMT140 are designed for humidity, temperature and analog signal monitoring in warehouses, cleanrooms, laboratories and many other life science applications. The data

loggers are equipped with onboard power, memory, stable sensors and a Wi-Fi transmitter to make device placement and chamber relocation simple, easy and cost-efficient. Using Wi-Fi connectivity, the product can usually connect to the user's existing wireless infrastructure. The battery-powered logger can operate for 18 months continuously or longer if using the batteries only as backup to the optional external power source.

The logger's enclosure is optimised for use in cleanrooms. The smooth surface of the enclosure makes it easy to clean and the enclosure material is chosen to tolerate purifying agents. The data logger is wall-mountable with fixed or remote probes.

Used in conjunction with the Vaisala Continuous Monitoring System, the data logger provides a simple, secure solution for temperature and humidity recording in FDA/GxP-regulated environments.

Vaisala Pty Ltd

Contact info and more items like this at wf.net.au/U745



Inline carbonation monitoring system

Centec's Carbotec-PT inline carbonation monitoring system offers precise, rapid measurement of the CO₂ content of carbonated beverages. Based on the pressure/temperature method, it is designed for continuous measurement of the CO₂ content of beer, wine, cider and sparkling water. Typical applications include monitoring CO₂ content for quality control and process control in either a beverage line or in-tank.

To determine the CO₂ content, a 25 mL beverage sample is automatically taken from the beverage line every 15 s. After the measurement the sample is returned to the beverage line. The Carbotec-PT covers the full range of 0-10 g/L and can be displayed in volumes or g/L.

The Carbotec-PT has onboard electronics/display and does not need a separate signal. Menu-driven software includes the product-specific calibration and product type selection. The Carbotec-PT connects to a process control PLC using standard PLC I/O or PLC bus system.

The sensor has a fully hygienic construction, can be cleaned in place with a normal line CIP system and does not need special cleaning. The Carbotec-PT connects to a beverage line using a Varivent inline access housing and requires minimal yearly maintenance.

B-R Controls Pty Ltd

Contact info and more items like this at wf.net.au/W384

WARNING



MUSHED IN SECONDS

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

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TESTING

Tray ranges

As part of the extensive collection of general-purpose labware manufactured by Kartell, there is a series of tray types in a wide range of sizes available to suit most laboratory applications.

High Impact PS Trays cover 15 different trays available in sizes ranging from small (151 x 201 x 21 mm) right up to large, deep trays (299 x 408 x 81 mm). The versatile trays are designed to be used in all laboratory situations and are suitable for storing pipettes, wash bottles, sample jars, beakers, etc.

PVC Input Trays are available with five or 12 compartments. They are a useful storage device for all small laboratory supplies, including stirrer bars, hose connectors, storage bottles, and small beakers and flasks. The five-compartment tray can also be used to store pipettes. It measures 303 x 403 x 63 mm, while the 12-compartment tray is 304 x 404 x 64 mm.

Deep HDPE Trays are stackable trays available in three sizes - 10, 16 and 20 L - and can be used for a wide variety of purposes. Made from HDPE and featuring carry handles and reinforcing ribs, the trays have a high resistance to alcohols, alkalis and both diluted and concentrated acids.

PVC Deep Trays are stackable trays which are suitable for a variety of purposes. The specially designed ribbed base makes the trays suitable for photography purposes. There are eight different-sized trays available, in sizes ranging from 150 x 200 x 45 mm up to 420 x 540 x 180 mm.

Sieper & Co Pty Ltd

Contact info and more items like this at wf.net.au/V693



Halal and kosher meat authenticity testing method

AB SCIEX has developed a method of halal and kosher meat authenticity testing that it says will reassure consumers of no pig or horse contamination. The method detects pig and horse contamination of meat, including beef, chicken, lamb and other meat products.

The method uses liquid chromatography and tandem mass spectrometry (LC/MS/MS) to detect a number of biomarker peptides that are specific to pigs and/or horses.

According to the company, the method offers a more accurate and reliable approach to meat speciation than other methods. It can detect markers of multiple, different animal species in a single run, in contrast to traditional methods such as PCR or ELISA, which can lack specificity.

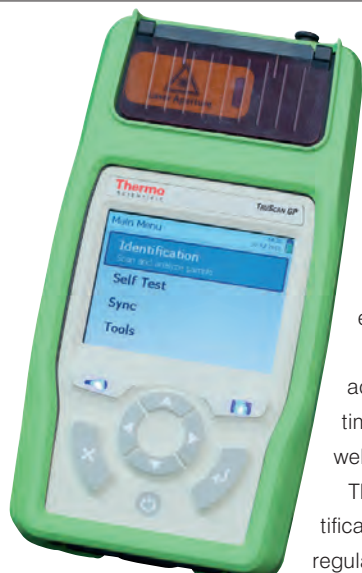
The method was developed using a two-pronged LC/MS/MS approach, using the TripleTOF 5600 system to identify the unique protein markers specific to a meat species, then using the QTRAP 5500 system to detect and confirm the presence of targeted meat peptides in unknown samples.

The QTRAP 5500 system uses multiple reaction monitoring (MRM) to detect each peptide and is then capable of providing sequence information by acquiring a product ion scan for each triggered MRM, which can be used to confirm the peptide's identity.

Horse and beef protein markers may differ by as little as one or two amino acids, so it is important to have confidence in the results when distinguishing between species in food testing, the company says. The method is claimed to present the first MRM and MRM3 method for rapid and sensitive detection of both species (down to 0.13-0.25%), using routinely available MS techniques.

AB SCIEX Australia Pty Ltd

Contact info and more items like this at wf.net.au/W358



Handheld Raman spectrometer

Pharmaceutical manufacturers and regulatory agencies around the world can use the Thermo Scientific TruScan GP handheld Raman analyser to identify raw materials and confirm the authenticity of finished products. The product offers pharmaceutical identification capabilities for pharmaceutical manufacturers in emerging markets.

The point-and-shoot unit is designed to allow more users to accurately identify inconsistencies in materials right away, saving time and money down the line in the manufacturing process as well as in the field of counterfeit screening.

The analyser features a probabilistic approach to material identification and is designed to assist users to meet a wide variety of regulatory compliance needs within the chemical screening market.

The user-built chemical library enables users to tailor the instrument to meet their specific screening objectives.

The product is easy to operate, with its simplified workflow requiring only a few minutes of basic operating instruction. Its portable size and rapid onboard result reporting is designed for effective field-based screening. Secure connectivity to archives is designed to promote data integrity as well as automatic generation of audit trails and test reports.

The instrument employs Raman spectroscopy, a laser-based analytical technique for pharmaceutical quality control, which works by detecting frequencies of light highly specific to the molecular structure of different liquids and solids. The purpose-built, streamlined, point-and-shoot device is a suitable identification solution.

Thermo Fisher Scientific

Contact info and more items like this at wf.net.au/V661

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Beverages



Less alcohol, more flavour with special yeast



While more alcohol in your wine doesn't necessarily sound like a bad thing, the gradual increase of the alcohol content of Australian wines over the last decade is concerning to some. Alcohol levels have crept up to around 12.5% - and even as high as 15% - which some wine buffs say threatens the flavour and character of wine.

In addition, increased alcohol content in wine raises concerns around public health and taxes. (In some countries, tax is imposed based on alcohol content.)

A team of researchers at the Australian Wine Research Institute (AWRI) has identified a strain of yeast that produces a lower level of alcohol, while preserving the flavour.

The researchers began by systematically screening non-*Sacchromyces* yeasts, evaluating 50 isolates from 40 species and 24 genera, assessing them for their capacity to produce wine with reduced ethanol concentration. They found the most successful of these yeasts was *Metschnikowia pulcherrima* AWRI1149. <http://bit.ly/1quDfRX>

The growing trend for low-calorie waters

The success of coconut water - which surged from zero in 2006 to an almost \$1 billion business in North America and Europe by 2013 - could be just the first step in a massive emerging trend: healthy, natural, low-calorie waters taken directly from plants.



Extraction and packaging innovations that prolong shelf life mean that consumers can now experience the subtly sweet taste of plant water taken directly from maple trees and birch trees. "With the right marketing and distribution strategies, these new waters will be a \$2 billion business by 2025," predicts Julian Mellentin, director of New Nutrition Business.

Like coconut water, maple and birch waters offer benefits that make them options for health-conscious consumers:

- Naturally healthy with a positive nutritional profile
- Naturally sweet - no sugar need be added
- Can be sustainably sourced with little constraint on volumes

With natural benefits like these, plant waters have no need for health claims. Sales of coconut water have been surging for five years - with no products carrying any health claims - driven by consumers' desire for drinks that are 'naturally functional' and have no added sugar. In fact, 'naturally functional' is the biggest driver in the industry, according to the New Nutrition Business report '12 Key Trends in Food Nutrition and Health 2014', and is the force behind the success of coconut water and almond milk. <http://bit.ly/1fry9BQ>

First product from Fonterra's UHT plant expected in March



Fonterra's new \$120 million UHT milk processing facility will be up and running shortly, following 12 months of construction. The site's first Anchor UHT product is expected to roll off the line in March. The site includes five new UHT processing lines that will produce a range of products including Anchor UHT white milk and UHT cream.

It will process more than 100 million litres of milk per year once all five lines are operating.

"The site's technology means we can produce up to 24,000 milk packs an hour per line. They will be flying off the line," said UHT Operations Manager Donald Lumsden. <http://bit.ly/1kKXBWb>

Advances in aseptic beverage filling

Aseptics have now breached the final building block in a beverage bottling line with the incorporation of the stretch blow-moulding machine in the aseptic concept. Aseptics now extend from preform decontamination through the aseptic blow module and aseptic filler to the aseptic closer.

One of the biggest fruit and vegetable processors in Europe, the family-owned, German company Stute Nahrungsmittelwerke, has expanded its aseptic beverage capacities by installing the Krones Contiform AseptBloc.

Stute produces a wide range of soft drinks as well as preserved fruit and vegetables, desserts and sweet spreads like jams, marmalades and honey. It supplies markets in Europe, America and Australia, where it holds IP patents.

At its Paderborn production facility, Stute fills cans, soft packages, glass bottles and PET containers with carbonated soft drinks, ice teas and near-water beverages, fruit spritzers, squashes, concentrated and direct juices, and chilled fresh juices. The 500,000 m² facility operates 36 soft-package lines, 13 aseptic PET lines rated at up to 40,000 bph, plus a beverage canning line and a glass line. Sales go mainly to large food and beverage discounters.

For many years, Stute has prioritised aseptic filling so as to achieve long-lasting freshness and a lengthy shelf life without using any preservatives or other additives. "Stute has committed itself unswervingly to operating without any preservatives. This means the kit involved has to offer manageable cleanrooms. When this became viable about a decade ago, Stute rigorously pursued the option of cold-aseptic filling," explains Christoph Frankrone, head of purchasing plant engineering at Stute.

Stute started off with aseptic filling of beverage cartons, then took its first steps with aseptic linear fillers for PET, and subsequently with small cleanrooms in conjunction with rotary fillers. By 2008, Stute had installed a total of nine

PET lines from a German vendor. In 2009, Stute turned to Krones and commissioned a PET-Asept L wet-aseptic line for still beverages. This was followed in 2010 by two more Krones lines for carbonated beverages, this time with the Contipure module for preform decontamination and then in 2011 by the fourth Krones PET line, once again a PET-Asept L wet-aseptic line for still, low-acid beverages.

Production cycles of 140 hours targeted

With the Contiform AseptBloc, Stute is using a harmonised blow-moulder/filler monobloc in which the aseptics begin even before the stretch blow-moulding process. Previously, in its wet-aseptic operations, Stute had kept the blow-moulder and the filler separate. "We confidently expect the Contiform AseptBloc to give us substantially shorter make-ready times, reduced by about two-thirds, and are looking forward to a significantly improved concept for care and maintenance, firstly thanks to a reduced number of wear parts and secondly to more intelligent part replacement. We see shorter cleaning cycles of just two-and-a-half hours instead of four, and we shall be trying to extend the production cycles to 140 hours," says Frankrone. That would indeed be a minor sensation. The four Krones lines previously installed achieve 96 hours of production time, while the figure for the older aseptic lines is 72 hours.

"We also anticipate that the new line will enable us to reduce the preform weights still further. As far as the microbiological situation is concerned, we are confident that in future we shall be achieving germ reduction rates inside the bottle of up to log 6. On the two wet-aseptic lines we're

running at log 5, while for the lines featuring the Contipure module, log 4 suffices because of the carbon dioxide content in the products concerned.”

Maximally fresh products on the market at high turnaround speeds

The firm's corporate philosophy emphasises continual upgrading of the production operations and purposeful deployment of the very latest technologies. Since 2006 alone, Stute has invested around 100 million euros in modernising and expanding its aseptic beverage capacities and its local infrastructure, so as to put large quantities of maximally fresh products on the market at high turnaround speeds.

With the Contiform AseptBloc, the preforms are treated with gaseous hydrogen peroxide after being warmed up and then passed directly to the blow module where the containers are produced under aseptic conditions. They are then filled in aseptic mode and fitted with decontaminated closures. All the machines in the system are monobloc-synchronised and are operated using a higher-order control system.

The system makes no compromises in terms of microbiological safety as it offers complete coverage down the aseptic chain - from decontamination of the preforms to closing of the bottles.

Moreover, the line eases the workload for the production staff and takes up significantly less space: Stute installed a Contiform AseptBloc rated at 24,000 bph, which requires 40% less space than a comparable PET-Asept D dry-aseptic system. [A 32,000 bph Contiform AseptBloc can be installed on an area that's about a third smaller than that of a PET-Asept L wet-aseptic system with the same rating.]

And that's not all - the total cost of ownership (TCO) is lower than with comparable conventional aseptic monoblocs. Thanks to the significantly lower costs for processing and operating materials and for care and maintenance, cost savings of more than 10% are claimed.

“The reduction in operating costs was one of the crucial factors when it came to deciding on this investment,” emphasises Frankrone. “The lower costs for the processing and operating materials show up to particular effect here, as do the lower maintenance costs. Because the production running times are longer, the costs for processing and operating materials are automatically downsized.”

Aseptic blow module

The Contiform A stretch blow-moulding machine has been designed so as to ensure that now only the moulds and absolutely essential components are located inside the aseptic zone. All other assemblies, cables, sensors and pneumatics have been removed from this area.

Several design building blocks help to make sure that the sterile zone is partitioned off from the rest of the machine. These include a defined overpressure in the entire aseptic area provided by a central ventilation system and a hydraulic liquid seal with an H_2O_2 solution. The electromagnetically driven stretching unit never leaves the sterile zone. Next to the stretching rods are only the left and right stainless steel mould halves with base and the aluminium moulds in the aseptic zone of the blow-moulding machine. Gaseous hydrogen peroxide from a central processing unit



Gaseous hydrogen peroxide is used for sterilising the surfaces of the machines and also for preform and closure decontamination.



The closure sterilisation unit, likewise new, is based on a simple, sturdy mechanical design. Over a short distance, the closures are sterilised within a minimised time frame by means of evaporated hydrogen peroxide.

is used for sterilising the surfaces of the machines and also for preform and closure decontamination. For sterilising the high-pressure air routes, the paths from the rotary manifold are warmed up with hot air and then cleaned by means of an H_2O_2 -air mixture. By sterilising the blowing paths and the blowing wheel isolator, a flawless microbiological state is assured in preproduction.

The product path and the isolator are cleaned simultaneously, in each case with hot caustic and acid, without any foam agents. A simple CIP system suffices for this purpose: neither a sterile-water UHT system nor a hygiene centre is required. This reduces the complexity of the cleaning process and downsizes the duration of the requisite cleaning routine to less than 2.5 hours.

Decontaminating the preforms creates a whole series of advantages as compared to sterilising the finished, blow-moulded PET containers. The preforms offer a significantly simpler shape and a considerably smaller surface area. In


There is a range of inspection technologies in food and grocery covering everything from physical parameters to the presence of impurities

contrast to bottles, moreover, with preforms there is no risk of shrinkage. This firstly enables the bottle's weight to be reduced, with concomitant savings in material, and secondly renders a Relax blow-moulding process obsolete. The process window, too, for reaching the germ reduction is significantly greater than for bottles, which increases the dependability and stability of the process.

The preform feed has been constructed in hygienic design: both the preform magazine and the preform chute have been fitted with covers. Moreover, a rinser uses ionised air to remove dust and smaller particles from the preforms. In order to upgrade the efficacy still further, a camera system inspects the geometry of the neck finish and will reject any non-conforming preforms. The closure sterilisation unit, likewise new, is based on a simple, sturdy mechanical design.

Over a short distance, the closures are sterilised within a minimised time frame by means of evaporated hydrogen peroxide.

From an environmental viewpoint, the Contiform AseptBloc scores highly by managing entirely without water during sterilisation and production modes. Water is now only required for cleaning. Thanks to the design concept for the cleanrooms, the overall media consumption is low. Hydrogen peroxide as a sterilising medium can likewise per se be described as eco-friendly: it breaks down into water and oxygen.

"Our aim is to be as far out in front as possible when it comes to technology," emphasises Frankrone. "The Contiform AseptBloc we now have replaces an older aseptic linear filler. We intend to successively replace the other linear lines as well, and thus at the same time increase our output. We see this fresh innovation from Krones as very well suited for this, particularly in regard to a possible reduction in the container's weight." 

Krones (Thailand) Co Ltd

Contact info and more items like this at wf.net.au/W452

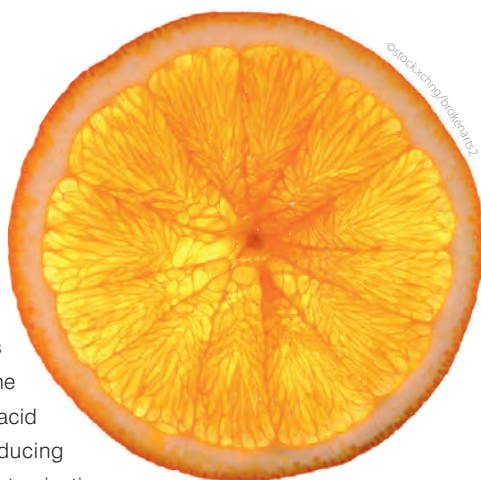
Juice pasteurisation process

Tetra Pak has developed a juice pasteurisation process that it says saves up to 20% on energy consumption. The process, which is suitable for high-acid juices, improves efficiency by reducing the temperature of the second pasteurisation process from 95 to 80°C, without compromising the quality of the juice produced. Juice pasteurisation is conducted in two steps. The first pasteurisation, commonly conducted immediately after the juice is squeezed, deactivates enzymes and kills microorganisms. Prior to the filling, another pasteurisation is conducted to destroy microorganisms developed during bulk storage. This second process is usually conducted at a temperature of 95°C for 15 s. With Tetra Pak's method, the temperature of this process is brought down to 80°C for juices with a pH level at or below 4.2. According to the company, the process has no impact on the quality of the juice produced in terms of taste, nutrition, storage stability and visual appearance.

The juice pasteurisation process has two international patents pending.

Tetra Pak Marketing Pty Ltd

Contact info and more items like this at wf.net.au/W365



Air nozzle for wide objects

Using an open pipe to supply compressed air can result in excessive noise levels and compressed air wastage. To combat this, Spray Nozzle Engineering has available a range of safety air nozzles that can reduce compressed air noise and usage.

The Silvent 973 nozzle creates an air stream with a broader striking surface, making it suitable for drying, sorting or cleaning wide objects. It is capable of withstanding high ambient temperatures and corrosive chemical environments, as well as satisfying the hygienic requirements of the food processing industry.

A full range of stainless air knives for both food and industrial applications are available, as well as pre-made manifolds for ease of installation.

Spray Nozzle Engineering

Contact info and more items like this at wf.net.au/W425



One-way plastic keg filling system

CoMac has developed a compact single-head, semi-automatic, one-way keg filling system - the 1T-OW - for the non-returnable craft beer keg market.

The fully encased system is suitable for filling one-way PET plastic kegs, with a nominal output of up to 40 kegs/hour with a keg capacity of 24 L. Kegs are filled from the top in order to avoid the rollover operation and a side opening can be installed to support a conveyor belt.

As the kegs are one way, they do not require washing prior to filling, so the machine is equipped with a single tank that is used to wash the fitting of the keg and to perform a wash cycle of the machine itself.

HBM Packaging Technologies

Contact info and more items like this at wf.net.au/W228

Fruit and vegetable milling machine

The Urschel Laboratories Com- itrol Processor Model 1700 milling machine produces slices, flakes, shreds, viscous slurries and purees from a range of fruit and vegetable products. Offering a variety of interchangeable cutting head styles and impellers, the machine is suitable for use in the beverage, soup, nutritional supplement, baby food and sauce industries. The machine can handle the reduction of mango pulp and fibrous fruits for tropical fruit juices. Pre-crushed fresh, ripe mango can easily be fed into the machine equipped with a microcut head. This process disperses black spots, so they are not detectable in the final output. This process generates an attractive, smooth consistency while producing added yield and reducing processing costs, the company says. Fibrous fruits may be processed in the same manner to effectively reduce cell membrane.

Heat and Control Pty Ltd

Contact info and more items like this at wf.net.au/W350



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Tank and barrel cleaner

The TankJet 360 tank and barrel cleaner can help beverage manufacturers maintain a strict hygiene regime.

The cleaner is lightweight and compact in design. Its position can be fixed or it can be inserted manually for rinsing. The tank cleaner is set permanently in place, which can save time and labour costs while improving operational efficiency.

The system's nozzles are constructed of stainless steel to ensure durability and resistance to high temperatures. The company has technical data available on the spray throw required for a variety of vessels, helping to ensure the adequate pressure is applied to clean the surface.

Spraying Systems can advise on the most suitable spray pattern configuration or system so suit a range of applications.

Spraying Systems Co Pty Ltd

Contact info and more items like this at wf.net.au/W447



High-speed linear palletiser

The HSLP-60 is a high-speed linear palletiser designed to palletise PET bottles onto preformed plastic trays at rates of 60 pallets/h.

The machine can help beverage manufacturers increase palletising throughputs in a market where both manufacturers and retailers move towards the common use of multipurpose, re-usable plastic pallet trays for PET soft drink and juice bottles.

The palletiser has a quad head that allows simultaneous pick and place of bottles and trays onto two pallets. The quad head achieves 300 bottles/min while minimising machine movements and speed, resulting in less stress on fast-moving components and greater operational reliability with less downtime. Vacuum or mechanical pickups automatically space bottles into

alignment for tray placement and also allow four individual trays to be picked off two separate pallets. At both the tray pick and bottle place locations, the integrated pallet conveyor's lift mechanism raises a conveyor to minimise head travel, thereby improving cycle time.

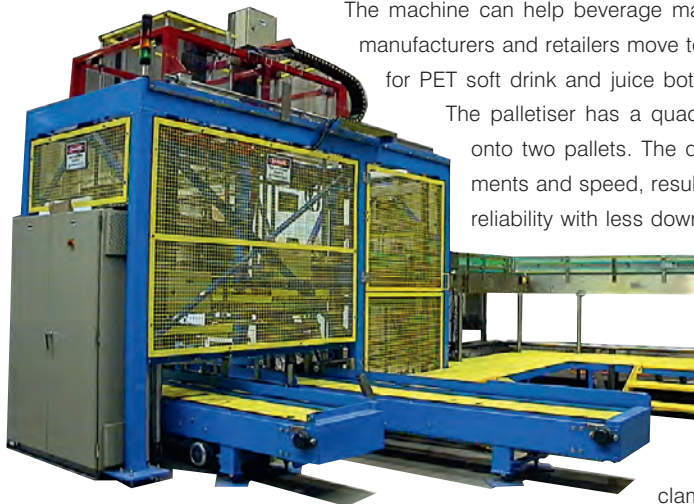
Tray stability is achieved with the use of retracting fingers that lock the bottles in place immediately after placement. The fingers remain until the bottle tray is placed; they then retract and a pneumatic clamp securely holds the tray ready for the next placement of bottles.

By holding the tray, the entire stack remains in position and fully vertical.

Even if the line stops, the tray will not 'pop off' the bottle caps, the company says.

Australis Engineering Pty Ltd

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Carousel filling machine

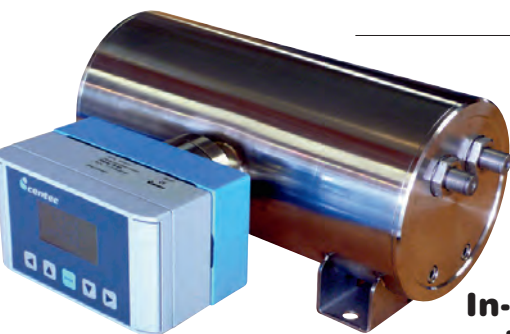
Ampack GmbH, a Bosch Packaging Technology company, has launched the KF 2/4 carousel filling machine for the aseptic or ultraclean filling and closing of bottles and cups.

The machine fills liquid products, including those with higher viscosity, fibres and particles such as fruit yoghurts, milk drinks, teas, coffees, protein drinks, baby food and clinical nutrition products. Capable of handling cup and bottle sizes from 100 to 1000 mL, the machine can reach speeds of up to 10,000 bottles/h for 200 mL bottles. According to the company, the filler offers greater flexibility than linear filling machines as it enables faster changeover between formats and pack styles, such as bottles and cups, in a variety of sizes. The machine's servo motor concept facilitates adjustment to different formats, as well as to its new gripper system that feeds and inserts bottles into the machine's transportation system and outfeeds the filled and closed bottles.

The machine includes a separate platform for its sterile air unit ensuring filters, pipes and sensors can be easily reached for maintenance. Due to the rotary valve design, the filler allows fruit, cereals or pulps to pass through. When it closes, its sharp edge cuts the particles instead of crushing them, avoiding dripping and preventing any hygiene issues.

Nupac Industries Pty Ltd

Contact info and more items like this at wf.net.au/W441



In-line density monitor

The Rhotec in-line density monitor continuously measures the density of liquids. Centec, a German-based company, designed the Rhotec for maximum sensitivity and high accuracy.

The Rhotec can be used in the food industry, breweries, beverage plants and pharmaceutical plants to determine the concentration of alcohol, sugar contents, acids, caustics and other solutions. For density measurement, the liquid flows through an oscillating U-shaped tube; any change in the fluid density causes a change in the oscillating frequency and is used to determine the density. As a specific property of each liquid, the correlation between concentration and density can be described by a mathematical polynomial.

With decades of experience and its own laboratory facilities, Centec has the polynomials for a large number of liquids. Temperature changes of the measured liquid are automatically compensated for by an internal Pt1000 sensor.

The Rhotec displays various units, e.g. vol.%, mass %, °Brix and °Plato. The Rhotec has a SS316 housing and is available with a range of wetted part materials to suit most liquids. A range of communication options exist to interface with PLCs and DCS systems.

B-R Controls Pty Ltd

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Coding solution keeps pace with expanding water bottler

As its business expanded, Stapylton-based natural spring water company Wet Fix found that its coding equipment couldn't keep up. While the company sells its own Mountain Dew label to distributors, the bulk of its business is contract packing, servicing more than 200 customised labels.

Kayne Gill and partners acquired the business in 2004, when it was producing only 19 litre bottles. As the company grew, it entered retail markets and moved to larger premises. The change into retail and customised labelling saw the company expand its bottle sizes.

The company found its coding equipment had some issues keeping up with the ever-increasing output.

"We had a laser that had reliability issues; it was very faint and would also miss from time to time. Then, changes to packaging meant we could no longer print and apply an adhesive label to shrink wrap, so we needed another solution there. On a third line, we also had a very old hot-foil system. So the whole lot needed upgrading to remove the downtime hassles, plus give us a professional-looking result," Gill said.

After comparing different technologies and suppliers, Wet Fix chose two Linx CJ400 continuous inkjet (CIJ) coders and a 30 W e-SolarMark laser from Matthews Australasia.

"We chose that particular machinery because it's easy to use and it's flexible - both speed-wise and it allows us to code where we want. But we also chose it because of the print quality. We found other, similar options out there, but they didn't seem to have as good a quality print at that speed. The CJ400s and e-SolarMark were just better value," Gill said.

Wet Fix already used a small DOD inkjet coder from Matthews to code its cartons and was happy with Matthews' service levels.

The company uses the e-SolarMark and one of the CJ400 Linx printers to code onto a range of different PET bottle sizes and shapes, from 300 mL to 10 L. The second CJ400 is used to code best-before dates onto shrink-wrapped packs.

"We're expanding very rapidly - it's good. We had a new line in August, so completely moved over to laser coding on the PET bottles on all but one line - the one where we were using the hot-foil. We'll retain the CJ400 coding there," Gill said.

The CJ400 has four different line settings that can be stored. "And all of that shows the flexibility of those coders - we can use them anywhere we need in our business, which is another reason we bought that technology," Gill said.

Using the CJ400 to code onto a shrink-wrapped pack of 24 bottles instead of print-and-apply labels has resulted in a more professional look, says Gill. (The CJ400 also has the ability to code onto cartons.)

"Previously, we were printing and applying pack labels and a description of the pack, along with the best-before date and batch number," said Gill.

"Now, most of our clients have gone to a preprinted shrink wrap. It's a similar price but looks a lot more professional when the product goes out. If you have print going onto a label there has to be enough space, and on some applications the labels weren't very good quality either. This is much better and, warehouse-wise, it doesn't take up a lot of space - unlike if it was preprinted cartons." The e-SolarMark laser and Linx CJ400 that code onto PET bottles are situated immediately after



As well as the 30 W e-SolarMark laser giving a professional-looking result, Gill says it has solved the issue of product being miscoded or skipped altogether.



Wet Fix uses a Linx CJ400s from Matthews to print best-before traceability coding onto pre-printed shrink wrap, replacing print-and-apply labels.



Wet Fix is also using a Linx CJ400 to code onto PET bottles from 300 mL to 10 L. The CIJ printer can code onto the PET at 175 bottles/min, with three lines of text when needed.

the cleanroom on the production line, with the second CJ400 located prior to the palletisers, directly after the shrink tunnel.

"At the moment we're using that for best-before dates and traceability with regards to time, Julian date, line number and so on. In rare cases, we also print a message and we could, if needed, do logos. We're just doing two lines of text. The best-before wording is fairly large, so it's easy to find, while the actual date underneath is smaller," Gill said.

The CJ400 and e-SolarMark can code onto the PET at 175 bottles/min with three lines of text. At this point, Wet Fix doesn't require such high speeds, but Gill is pleased that the higher capable speeds futureproof the lines. The three pieces of Matthews equipment have improved Wet Fix's efficiency and productivity, Gill says.

"It's very concerning if something goes out there without traceability coding - it is potentially very damaging to the product and brand. We were having reliability issues with our old equipment to the point that we were manually checking everything as it went out," said Gill.

"We do have an hourly set check, but when we were having reliability problems, we were manually checking every moment we could - as much as every five to 10 minutes. We had to be sure the print was still going on, because when it stops you have to go back through all that production to see where it stopped and then pull that product out and get it reprinted or dispose of it. It is a big nightmare, and the quicker you can catch it the better.

"Coding is a critical area. As well as giving a professional-looking result, this equipment has certainly relieved that pressure."

Matthews Intelligent Identification Pty Ltd

Contact info and more items like this at wf.net.au/W410



Wet Fix chose the Linx CJ400 from Matthews because of its high print quality and flexibility. Director Kayne Gill says they can use it to code packs or individual product.



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Fruit and vegetable farmers labelled a success



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Modern labelling ensures farmers protect their place in the fresh produce distribution system

Karl Perry, Intermec US Product Manager, Printers

News of pathogen outbreaks in the past caused alarm bells to start ringing for not just one, but many fresh food producers, as it took weeks to determine the precise location of the outbreak. In the meantime, farmers had to sit back and watch as millions of dollars' worth of a full growing season's produce was needlessly destroyed in search of the source.

This enormous waste has placed pressure on regulatory bodies responsible for food safety to better manage the risk of outbreaks by putting in place requirements for access to more food production information. These regulatory bodies are also running strong educational campaigns to communicate, often through media, to the general public the need to adhere to best practice food safety, as well as submit complaints related to food poisoning.

With this knowledge at the forefront of their minds, it is also impacting on consumer attitudes towards food safety across the board. They are now joining regulators in demanding that the entire supply chain - from farm to fork - be able to trace and account for where fresh produce is grown, where it is going and how long it remains at any given point along the way.

Farming is moving away from its low-tech roots

While the norm for many years has been for fruit and vegetable growers to put a simple UPC barcode or product type identifier label - such as 'Red Delicious Apples' - on boxes of produce, these traditional methods are no longer sufficient for the current fresh produce distribution system.

The food industry is becoming more interconnected with the rise of multinational food processing and retail companies. With this shift comes increased pressures of controlling food safety liability and introducing supply chain management to an international standard. For farmers, this means mov-

ing away from their low-tech roots and towards automation. Some farmers are now using a range of technologies including GPS to track the exact location where a box of fruit or vegetables was picked, RFID tracking pallets and a subset of GS1 barcodes to make pallets traceable as they move through the supply chain.

These technologies arm them with a range of solutions that can be used to create modern labels that detail the date and individual planted field where an item was picked. The availability of this kind of label that follows a product at every stage along the supply chain offers enhanced accountability and places regulators in a better position to pinpoint the source of pathogen outbreaks much faster. This greatly reduces the scale of what must be recalled, saving millions of dollars in losses for farmers and lessening the stress for concerned consumers.

For farmers, the foremost advantage of traceable labelling when it comes to pathogen outbreaks is that they can quickly be eliminated as the source and their food need not be recalled. This saves them money at the front end of their business, but also at the back end by avoiding litigation. Of course, there is also the potential that traceability will mean a farmer's produce is found to be the source of the pathogen outbreak; however, it is very likely that awareness that their produce is traceable will make farmers even more careful to ensure they are not the source of an outbreak.



Comply or don't participate

Major retailers are increasingly paying close attention to regulator and consumer demands and are in turn asking that fresh food suppliers make their products traceable.

This is certainly the trend amongst large US retailers, such as Walmart and Safeway, who have indicated they are now in a position to accept traceable packages in their stores. In fact, during the recent 2013 North American summer, they indicated that by the end of this year all their suppliers will have to either be compliant with traceability requirements or have a waiver. This is a considerable incentive for farmers to move towards compliance, since those who aren't compliant risk being cut from supplying to big retailers.

In the near future, the clear message will become "comply or don't participate". Those farmers who do comply will be positioned to sell to larger markets and will have a competitive edge over non-compliant producers.

This is not the first time Walmart has taken the lead in leveraging a new standard and driving its suppliers to adopt it. It previously played a pivotal role in pushing globally accepted barcoding standards. Given Walmart's strong influence as the largest supermarket chain in the world, we can expect to soon see a call for standardisation of traceable labels across the largest food import and export market, the US¹. We can obviously expect this to cause a ripple effect throughout global supply chains, including Australia, due to the growing local presence of international supermarket chains.

Unfortunately, meeting traceable labelling requirements is considered to be purely a cost of doing business and doesn't by default guarantee long-term increased profitability. The Australian Bureau of Statistics (ABS) recently reported that in 2010-11 the majority of Australia's farms remained comparatively small, with just over half (55%) of 135,000 total Australian farming businesses having an estimated value of agricultural operations of less than \$100,000².

Therefore, the cost of automating without a guaranteed financial return can work as a significant deterrent for many Australian farmers who are already working under tougher conditions than ever before, with increasing competition and diminishing profit margins.

However, with the ABS report also noting that agricultural production in Australia in recent decades is being increasingly concentrated in the small number of large farms (6%) - which in 2010-11 had estimated agricultural operations in excess of \$1 million³ - it is important for small farmers to try to find ways of keeping up with these larger players in the market.

Complying without blowing the budget

The key question for smaller-scale Australian farming businesses is: what modern labelling technologies can you bring to your business that won't blow the budget? This can be a difficult question for farmers who are faced with a vast array of available technologies - handheld computers, voice directed picking, tablets, rugged printers with RFID tagging capabilities that can be mounted directly to harvesters, etc.

One technology that stands out for offering automation at a reduced cost is a Smart Printer such as Intermec's PM43, which opens up the possibility of labelling right at the source of the produce, with the stand-alone rugged labelling solution able to be connected to any vehicle in the field with a power inverter, including harvesters. The entire labelling solution sits on the printer as a stand-alone solution in the field as no computer is required. By moving the labelling operation to the field and making harvesters or pickers responsible for labels, it eliminates labelling mistakes, which is a saving for the farmer.

Less label waste is also something we hear over and over. In traditional produce labelling, a roll or more of labels is printed in the packing shed, or in a truck next to the field, prior to the start of picking. Frequently the entire roll is not



The key question for smaller-scale Australian farming businesses is: what modern labelling technologies can you bring to your business that won't blow the budget?


Wet Fix uses a Linx CJ400s from Matthews to print best-before traceability coding onto pre-printed shrink wrap, replacing print-and-apply labels.

used - but it cannot be re-used the next day because it contains a date code. So the remainder of the roll is discarded. Printing labels one by one on the harvester or as the produce comes in to the packing shed eliminates this waste and doesn't interfere with productivity.

At the other end of the spectrum, Smart Printers avoid the common problem of a full roll of labels running out before a field is finished. This creates a situation where there has to be a runner whose job is to go to the field edge and print more, or where pickers are left standing around while the foreman runs back to the packing shed - sometimes kilometres away - to print more labels.

These types of printer are rugged and fast, and avoid the need for a connected computer as they communicated wirelessly or through a USB. Bluetooth barcode scanners, scales or

data input and parts can easily be serviced remotely without the need to send it to the manufacturer for repair.

Farmers who make an investment in this kind of technology will be much better positioned to keep up with regulatory and consumer expectations, pick more each day and protect their place in the larger fruit and vegetable distribution markets. 

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Intermec Technologies Aust Pty Ltd

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Label printer

QuickLabel Systems has introduced the Kiaro! 200 label printer, a wide-width inkjet colour printer designed for the short-run labelling needs of manufacturers of large-size products in the chemical, dietary supplement and food industries.

The Kiaro! 200 is capable of printing labels that measure up to 203.2 x 431.8 mm, at speeds of 8"/s. The printer joins the standard Kiaro! label printer, which enables manufacturers to print labels from 25.4 to 101.6 mm in width.

The product prints detailed images on labels from 101.6 to 203.2 mm in width and up to more than 431.8 mm in length. QuickLabel says the quality is consistent and the operation is easily repeatable, as the printer consistently prints labels at 8"/s, in 1200 dpi high resolution. The printer automatically detects when cleaning is necessary and performs automatic cleanings without wasting any excess labels.

The Kiaro! 200 prints on an array of substrates, including gloss paper and polypropylene. According to the company, the printer is easy to use, operate and set up. The fully integrated design is user friendly, allowing operators to quickly load labels and inks.

The print drivers of the Kiaro! 200 are compatible with all major labelling software including QuickLabel's own included Custom QuickLabel, as well as third-party software such as NiceLabel and Bartender.

Metromatics Pty Ltd

Contact info and more items like this at wf.net.au/V590

Product changeover automation system

Krones' LineXpress L enables a product changeover to be automated throughout, including all process steps, and thus be performed reproducibly in 10 to 15 minutes, improving the line's availability.

The LineXpress automatic flying product changeover capability is available for the Krones Contiform Bloc and the ErgoBloc L. Changeover time is defined as the period elapsing from the last bottle of the old production run to the first bottle of the new production run. The automatic flying product changeover routine for non-returnable PET lines covers changing the beverage, the closure colour and the preform colour.

A flying product changeover routine with simple intermediate rinsing will take 10 to 15 minutes, depending on the equipment design involved. Make-ready work for handling parts, components (eg, capping cone, etc) and manual adjustments will lengthen the changeover time correspondingly.

In the case of a product changeover involving a CIP system, the filler and the mixer will automatically go into CIP readiness. The CIP system will continue to be controlled by the CIP-Master.

With the system, users can increase available production time ie, the overall equipment effectiveness (OEE). This can reduce total operating costs and improve profitability due to the additional contribution margin per unit sold. According to the company, the system can reduce losses in terms of product and packaging material, and enable users to plan on the basis of stable and reproducible changeover times.

JL Lennard Pty Ltd

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Interview with John Nickless MAIP, National Account Manager, Innovia Films Asia Pacific

I have been a member of the AIP since: September 1984. **What the AIP means to me:** It's been invaluable. It is a great networking opportunity, plus a chance to catch up with current members and past colleagues and associates. More importantly, it has enabled me to keep up with modern trends and packaging technology. **Education in the industry is:** Paramount to ensure our packaging industry continues to thrive and attract quality individuals. It is also extremely important to ensure our industry keeps up to date with what is happening both here and overseas.

My strongest memory of change within the industry: The merger of many packaging companies and, sadly, the increasing loss of business to overseas competitors. Initially it was resin, then film, then printed rewind and finally, the total import of finished packaged goods.

My advice to those starting in the industry: Ensure you join organisations like the AIP and actively participate. Those who start in the packaging industry tend to stay, which reflects the rewards and good environment in which the packaging industry operates.

My mentor was: There have been many, but most of my knowledge was gained firsthand. As sales professional I have had the benefit of encountering all facets of the plastics and packaging industry. I value all the friendships and business partners I have dealt with over my 40 years in the plastic and films business. Don't forget the adage, "Companies open doors but people do business".

My greatest achievement in the industry: There are many; however, being acknowledged by the AIP for my contribution to the packaging industry is probably one of the highlights. It was totally unexpected. I have always tried to help customers to grow their business and in so doing I have made a wealth of friends. By sharing my experiences and ideas with them I have gained their mutual respect and that has given me a great deal of personal satisfaction. Gaining their trust while assisting them to achieve their individual and company business goals and objectives has been very rewarding indeed. It is a great industry and one which I am proud to say I am associated with.



John Nickless MAIP
Australian Institute of Packaging
www.aipack.com.au



Hot-fill system

Krones has released an updated version of its NitroHotfill process. This technology enables bottles to be produced with a minimised weight without featuring the typical vacuum panels. The process requires less energy and is more cost-effective overall, the company says.

Filling temperatures of up to 90°C are possible with the system, and the same designs can be handled on both aseptic and hot-fill lines.

The bottle's base design has also been improved: in addition to the bases currently in use - which permit container weights of just 15.5 grams for 500 mL bottles, for example - flatter, design-optimised bases are available, which can improve the visual appearance of the bottles.

According to the company, the system requires up to 40% less energy than conventional hot-fill processes, offers potential for lightweighting and enhanced scope for creative design, with panel-free sidewalls and flatter bases.

Krones (Thailand) Co Ltd

Contact info and more items like this at wf.net.au/V939



10 L PET jerry can

Bottles Ltd manufactures a range of PET packaging that has been developed for the food service and food export industries.

The company's non-glugging, recyclable 10 L jerry can has a large, angled neck and an integrated handle, which makes it easy for users to pour accurately from the container.

Label placement on the container is simple as the 240 g container has smooth sides without structural ribs. Two 10 L carton packs are a viable alternative to a 20 L jerry can as they are easier to handle and pour, the company says.

The 10 L PET jerry can uses around half the material required to produce alternative 10 L containers, the company claims.

Bottles Ltd

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Braille printing method for plastic packaging



M&H Plastics has developed a method of printing braille characters directly onto plastic packaging. A high-build varnish is used to print the dots directly onto the product using accurate control measures to ensure the height of the braille alphabet remains uniform throughout the packaging run.

Samples of the braille printing have been analysed by the Royal National Institute of Blind People and measured against the Marburg and RNIB standards.

According to the company, braille printing directly onto the product has benefits over labels which can easily be damaged or peeled off. In addition, the braille printing is less likely to rub off, the company says.

Although developed specifically for braille, this process can also be used in traditional screen printing, allowing users to highlight specific design features by using an embossed effect.

Plasdene Glass-Pak

Contact info and more items like this at wf.net.au/W345

Oriented polystyrene (OPS) shrink film

Suitable for use in shrink sleeves, oriented polystyrene (OPS) shrink film is a low-energy film suitable for lightweight PET and HDPE bottles.

The material requires less heat to shrink than other products, thereby using less energy. Due to its shrink characteristics, it is suitable for use in shrink sleeves on difficult shapes. The film is recyclable and can be fully printed.

DFC Packaging Group

Contact info and more items like this at wf.net.au/W426



Roast chicken packaging solution

Sirane's Sira-Cook PA is a packaging solution for meat, fish and poultry which allows food to be packed, shipped, retailed and cooked in the same package. The nylon material absorbs the fat released during cooking, resulting in crisp, clean food. The bags can be used for chickens, turkeys and other large joints of meat including whole salmon. Sirane has available a machine for bagging chickens into the Sira-Cook PA bags which can bag 40 birds per minute.

After a chicken has been bagged, the roasting bag can then be tied or heat sealed ready for transportation in a bag that the consumer can put straight into the oven and cook. Extra ingredients such as herbs, spices and sauces can be added into the bag.

When cooking in a Sira-Cook PA bag, a baking or roasting tray is not required, keeping the oven clean. The food is cooked in its own juices, ensuring it stays moist.

According to the company, the bags are strong and robust and will not become brittle during cooking.

CMActive

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Control equipment addresses multiple blow-moulding challenges

With a gap as short as 15 minutes between blowing and filling a PET bottle, producing containers of consistent quality is imperative. Container defects can cause serious and costly disruptions that can have a knock-on effect through the entire processing plant.

When two different types of PET containers - such as standard beverage bottles and wide-mouth jars - are fabricated on the same machine, the complexity of the blow-moulding process intensifies.

Blow-moulded plastic container manufacturer Graham Packaging Co addressed these challenges with the help of Agr International's Process Pilot Automated Blowmolder Control System and the OptiCheck vision-based inspection and measurement system.

Installed in the blow moulder, the Process Pilot uses a combination of powerful software and high-accuracy sensors to proactively manage material distribution throughout the container. Downstream, the OptiCheck ensures that all output meets specifications before entering the filling line.

Graham makes two types of containers with different finish diameters: a 43 mm finish for the bottles and 63 to 83 mm for the jars. At first, the company thought that producing both types on a single Sidel blow moulder with a spindle diameter of 43 mm was impossible.

However, the manufacturer developed an economical approach that adapts to each format by deploying its proprietary blow-trim technology. In the blow-trim process, custom moulds inserted inside the blow moulder shape the wide-mouth jars out of 43 mm diameter preforms. Instead of using the threads of the original preform, the mould forms a new set of jar threads at a point along the preform side wall. In a secondary process, the portion of the jar above the newly blown threads - the moil, or excess area - is cut off by a trimmer downstream and recycled.

According to David Piccioli, director, Global PET Technology Development for Graham, the blow-trim process is more challenging than traditional rehear stretch blow moulding. "It is much more difficult to control the blown finish," he notes.

The difficulty lies in attaining the right material distribution in the body and thickness in the thread region, a task for which the Process Pilot is suited. Its thickness gauge sensors measure 16 different points on the side wall around the perimeter of the bottle. Sophisticated algorithms analyse minute changes in material distribution.

If there are any deviations from specifications, the Process Pilot automatically corrects the corresponding area of the blow moulder. Working in conjunction with the blow-moulder controls, the system can simultaneously adjust multiple settings - lamps, blow pressure and timing, for example - to maintain tight process control parameters with minimal operator intervention.

Because jar finish is so critical to protect product integrity, the containers go through one final inspection step before



being conveyed through the wall to the filling plant. Graham personnel view the Agr OptiCheck, a compact inspection and measurement system, as their 'last line of defence'. The OptiCheck's finish gauging module uses a proprietary configuration of multiple cameras, LED-based backlighting and high-speed imaging to measure critical container dimensions inline to an accuracy of 0.0508 mm. The system's image analysis algorithms accurately identify flaws and blemishes, such as whiskers left from trimming, rejecting jars that could pose seal surface-related problems.

The cost-effective blow-trim approach offers multiple benefits for the container manufacturer. Fabricating the wide-mouth jars from standard preforms eliminates the need for special handling equipment and a dedicated blow moulder with larger spindles. The jar line is able to run at normal production speeds, in sync with the filling line, making the customised containers very competitive.

Automated management of material distribution overcomes many potential container issues, whether relating to operator inexperience, preform variability or environmental influences. Precisely controlling the blow-moulding process ensures that every jar and bottle can be sealed to protect the integrity of its contents.

In the 12 months following the installation of the Process Pilot, the bottle plant experienced a 52.7% improvement in waste reduction. Looking at all the benefits, including enhanced productivity and the savings in raw material due to consistent output, the payback period for the new system was less than one year.

The operation has seen a big improvement in C_{pk} s and P_{pk} s since the Process Pilot and OptiCheck were installed on the blow-trim line, observes Graham Plant Manager Don Waud.

"Our productivity and customer satisfaction have increased, and we don't run our jar line without them," Waud concludes.

Agr International
www.agrintl.com

Aroma-emitting zipper closure

Zip-Pak has developed the Fragrance-Zip, a zipper closure solution designed to emit a customised aroma upon initial and subsequent openings of a flexible package.

The scent is embedded in the reclosure during the manufacturing process. The fragrance can be incorporated into any style of resealable Zip-Pak closure.

The company claims it can duplicate most aromas, enabling a package to replicate a desired scent whenever opened.

ITW Zip-Pak

Contact info and more items like this at wf.net.au/W597

Plastic bottle neck spin trimmers

MAER has released the SB3 Series of spin trimmers for neck cutting of plastic bottles and containers.

The SB3 series is based on the superseded TC-4 model, but includes a number of improvements such as: reduced footprint, improved accessibility from both sides of the machine, simplified format changeover, and easier access for cutting blade changeover and adjustment.

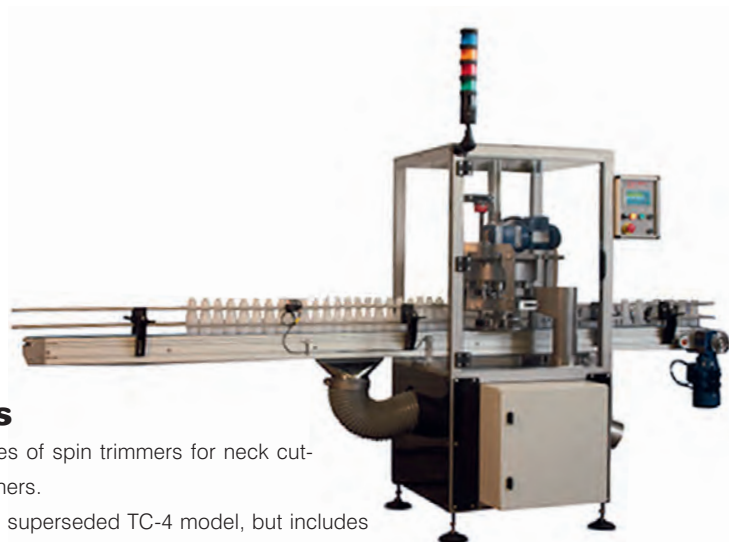
The machine has an open design to allow for a greater degree of control and visual inspection of the bottles during the trimming process.

The series has been designed to handle small plastic bottles made by extrusion blow moulding for food use - in particular, single-serve yoghurt drink bottles. The machine can be integrated post the blow moulder or into the filling line before the bottle filler.

According to the company, the machines offer production outputs of up to 8000 bottles per hour.

HBM Packaging Technologies

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Food safety and UV-cured printing inks

There is much to be said in favour of radiation-curing inks, as world-leading manufacturers of packaging print equipment - and their users - have already discovered. Because UV inks cure faster, work throughput is much more positive than with traditional print drying tunnels.

David Helsby, President, RadTech Europe

Just as importantly, UV inks deliver high-quality, crisp, graphics (partly a by-product of their speedy cure, which reduces the 'dot gain' flow tendency of liquid inks). Perhaps most important of all, they achieve all this without emitting any VOCs (volatile organic compounds), making them an environmentally friendly alternative to solvent-based inks.

Learning lessons

UV inks are comparative newcomers to the world of packaging print, and - as with all new technologies - there have been lessons to learn. Early on in their history, UV inks used to print the exterior of packaging for baby milk and breakfast cereals showed evidence of migration of a key curing chemical, ITX, through the packaging into the food itself.

Packaging barrier performance

Although some of today's advanced packaging structures may effectively act as a barrier against migration, only two materials - glass and metal - are regarded as absolute barriers. The permeation of possible contaminants through the packaging substrate, including ink migration, is therefore often possible.

An additional factor in relation to ink contamination is the possibility of ink 'set-off'. This involves the transfer of ink from the printed side of packaging to its underside (ie, the surface which will make contact with the pack

contents). Issues like this, along with questions reflecting wider discussions relating to BPA in human contact, are at the heart of RadTech Europe's consumer safety agenda surrounding UV inks.

RadTech Europe is an industry association focused on the use of radiation curing in a number of manufacturing arenas. It is proactive in promoting and managing the technology's future in the field of packaging print.

The association has engaged with the entire packaging print supply chain, from the suppliers of ink components to the end-user brand owners and retailers, and continues to do so. A highly focused pan-European food packaging seminar is planned for the second half of 2014, as part of the association's proactive ongoing formal and informal communications program.

Regulatory initiatives

As a result of the original migration issues, Nestlé instituted its own company-specific food packaging production standards; and these events have also been the driver for a raft of regulatory initiatives across Europe on the use of inks in food packaging - initiatives that reflect the importance of the issue to all involved in the packaging print supply chain. RadTech Europe and other leading technical associations, including the European Printing Ink Association (EuPIA) and the European Chemical Industry Council (Cefic), are all actively addressing these concerns in concert with the EU

UV inks are comparative newcomers to the world of packaging print, and - as with all new technologies - there have been lessons to learn.

authorities and in line with REACH (Registration, Evaluation, Authorisation and Restriction of Chemicals) requirements.

Although there is still no specific EU legislation concerning printing inks in food packaging applications, good manufacturing practice for all materials intended to come into contact with food - including inks - is covered by the Commission Regulation 2023/2006 and Directive 2007/42/EC, which relates to printed packaging from regenerated cellulose film, which must not come into contact with food.

Additionally, the Swiss Ordinance on Materials and Articles in contact with food - often used as an industry standard - continues to refine a list of permissible substances as knowledge grows; and although printing ink components are not specifically listed, any listed components are subject to specific migration limits or maximum content levels. Germany is also in the development stage of its own ordinance in this respect.

RadTech Europe members are part of these teams, contributing their expertise to help establish the highest-possible migration limits, and, with EuPIA, have been instrumental in developing REACH dossiers and in compiling migration data for submission under both the Swiss and upcoming German Ordinances.

Ink innovation

EuPIA has developed its own guidelines for the printing industry on the selection of raw material constituents of food packaging inks, which are today the established standard. There is a standard Statement of Composition which EuPIA members will provide to the food printing and packaging chain to confirm that the inks supplied are fit for purpose; and printers are encouraged to conduct their own practical migration tests as appropriate for the types of packaging print they undertake, as a 'fail-safe' mechanism. The industry continues to innovate, too, with inks demonstrating lower migration levels associated with radiation curing.

"RadTech Europe's prime goal is straightforward: to ensure that brand owners can safely use radiation-curable inks in food packaging applications, without endangering the consumer, and enjoy the attendant benefits," said RadTech Europe's president, David Helsby. "Radiation curing has a long and successful history in providing optimal outcomes in many other aspects of manufacturing, including flooring, automotive and electronic components, household appliances, metal cans and rigid plastics. Food packaging print need not be an exception."

Further information on RadTech Europe's ongoing work in the printing inks arena is available via the association's website, www.radtech-europe.com.

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In industrial processes with a high degree of automation, colour often is a selection criterion for the recognition, sorting or checking of different goods.

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A high switching frequency of 2000 Hz allows the sensor the reliable detection of different objects in industrial processes.

The unit is set to the colour to be detected with one push of the button. With five selectable tolerances, even the slightest differences in colour shades as compared to the background or other objects can be distinguished. The autodetect output stage automatically sets the switching output of the sensor to PNP or NPN operation.

ifm efector pty ltd

Contact info and more items like this at wf.net.au/T224

UHF read/write head

Turck has added the Q175 compact UHF read/write head to its RFID portfolio.

Designed to communicate with multiple data carriers, the Q175 uses both HF (high frequency) and UHF (ultra high frequency) RFID technologies. Turck says this capability allows it to expand its RFID technology to accommodate diverse industrial production and logistics processes.

With a ready-to-deploy design, the active read/write head supports the ISO 18000-6C and EPCglobal Gen 2 Standards and can be easily integrated into existing production lines. For use in harsh applications, the Q175 combines its antenna and electronics in a robust IP67 aluminium housing.

It also allows direct mounting on metal and can be used at high temperatures or in autoclaves.

The read/write head can be operated on Turck's modular and block BL ident RFID systems simultaneously with HF components.

Turck Australia Pty Ltd

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Pallet labeller

Domino has expanded its M-Series range of print and apply labellers with the M220 off-shelf pallet labeller. The labeller is designed to meet the tertiary labelling requirements of a range of packaging lines.

The M220 has a tamp head that allows 180° movement, allowing labels to be applied on up to two adjacent sides of the pallet as dictated by the customer requirement and production line layout. This gives the user a degree of adaptability and can reduce lead times.

The labeller is available in either aluminium or stainless steel; both versions have optional label check scanners and a climate control unit. The stainless steel model is suitable for harsh environments such as those in the beverage sector as it is more durable and can be easily cleaned and sterilised in order to ensure a clean production environment.

The system is designed to fit on a single euro pallet, minimising shipment space and reducing shipping costs. It can also reduce the product's carbon footprint.

Domino (Australia) Pty Ltd

Contact info and more items like this at wf.net.au/W042



Steam-cooking bag

The Si-bagT from Sirane is a steam-cooking bag for oven or microwave. The cook-in bag helps seal flavours into food and may aid in portion control.

It has been designed to be safely used in a conventional oven at up to 200°C, in a microwave and a freezer for subsequent reheating and eating.

The bag is suitable for cooking meat, fish and vegetables. Flavoured butters and glazes can be added to the bag. The Si-bagT can be used as a retail counter bag, but is also available in retail packs so users can add their own ingredients and use the bags as they require them. The bag is made from a very high temperature-resistant film. The meal is sealed using a fold-over flap; after sealing, the bag reportedly becomes odour and leak proof.

Sirane Ltd

Contact info and more items like this at wf.net.au/V940



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Photoelectric sensor

Traditionally, it has been necessary to separate packages in order to count or detect them with the aid of photoelectric sensors (for example). The DeltaPac photoelectric sensor from Sick enables objects to be reliably detected in a gapless product flow.

The system uses the company's patented Delta-S Technology: two energy scales each with two receivers and four PinPoint2.0 LEDs combined with Sick's specific ASIC technology SIRIC and integrated distance measurement. DeltaPac's principle of operation makes use of edge contours of objects. The edges cause the reflective behaviour of the packaging surface to change in the gapless transition from one object to another. This changed direction of reflectivity is used for the output of switching signals.

According to the company, object contours with radii between 1 and 20 mm are reliably identified by the system, and its high-precision evaluation characteristic ensures that small changes in angles are reliably detected. The company claims it is possible to reliably identify up to 20,000 pieces/h with conveyor speeds of up to 3 m/s. The system is able to detect objects aligned in a push-push configuration. Machine elements for packaging buffering and separation mechanisms are no longer required when using the DeltaPac, which can improve space utilisation. Product flow is stabilised because collisions due to falling packaging are reduced. Machine downtime, incorrect loading when grouping items and loss of quality due to crashes can be avoided by using the system, the company claims.

The system is easy to operate. A sensor version with IO-Link is available, allowing configuration of the sensor according to application conditions.

Sick Pty Ltd

Contact info and more items like this at wf.net.au/V857

MAP software

Modified atmosphere packaging (MAP) uses micro-perforated packaging films for optimising the gas composition within packaging to extend shelf life of fresh products.

Using StarMAP software from ROFIN, micro-perforations are individually customised for the produce and the packaging geometry (tray, cup, pouch, flow wrap, etc). Package volume, packaging film type and storage temperature are considered as well.

The software calculates the optimum O_2/CO_2 balance in the head space of the packaging. Growth-related factors can be included on request.

Depending on the packaging's volume and geometry, StarMAP determines the size and number of micro-perforations needed to provide the optimum gas composition. This prevents anaerobic conditions and minimises product respiration in order to increase shelf life.

According to the company, the software offers fast and flexible adaptation to varying products and packaging, and eliminates the need for time-consuming and costly trial and error. It can reduce waste and streamline production.

The software has an easy-to-use interface. An optional device for measurement of respiration rates on-site is available. StarMAP can be used with any ROFIN web-direction laser perforating solutions such as StarPack WD and StarPack AP.

Laser Resources Management Pty Ltd

Contact info and more items like this at wf.net.au/W129



Strapping machine

With a harmonised and easily accessible Standard-6 strap path, CE marking from the factory and a user-friendly interface, the Evolution SoniXs TR-6 strapping machine is suitable for use in the pharmaceutical, printing, paper and logistics sectors.

The machine's open and accessible design facilitates maintenance activities, allowing for fast and efficient cleaning and servicing.

The CE marking from the factory obviates the need for protective elements, the company claims. The construction of certain components of the machine, such as the hold-down device and the backstop, eliminates potential hazards. The machine can be integrated in all production lines that are hazard-free at the inlet and outlet without any additional safety measures.

Mosca

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Australian Brewery brings back the can

Australians are embracing boutique beer: revenues of craft beer have increased by 6.4% in the past year alone, according to an IBISWorld craft beer production report.

With so many boutique breweries springing up around the country, brewers need to do something different to stand out from the pack. A Sydney-based craft brewery, the Australian Brewery (AB), decided to break from tradition by brewing in cans.

"After extensive research by our brewing team, we have gone with cans because they preserve beer for longer and are less susceptible to oxygen during the sealing process," said David Ward, AB ambassador. "They also leave a smaller environmental footprint, something that we already pride ourselves on operationally."



According to AB's website, there are three key factors that affect beer flavour: light, oxygen and heat. UV light breaks down beer's delicate aromas and flavours, the brewers say, but cans protect the beer from light. "Cans are much easier than bottles to fill with beer whilst keeping oxygen levels extremely low," AB's website says, explaining how cans reduce oxygen exposure. "We manage around 10 parts per billion or 0.000000001%."

Cans, however, transmit heat at the same rate as glass bottles, but, as AB's website optimistically states, "cans beat bottles on two out of three" factors affecting flavour.

While an empty bottle weighs around 210 g, an empty can weighs just 16 g, AB says. The brewers claim that a 16-pack of cans uses 42% less packaging by weight than the equivalent of glass bottles, and, due to cans being a more efficient use of space, they use around 40% less volume once packaged up and ready for sale. "These add up to a huge energy and resource savings just by using a different method of packaging beer," the AB website says. Aluminium cans requires more energy to produce than glass bottles, but 92% less material is required for cans. Aluminium is also far more recyclable than glass, AB says. "Recycling aluminium saves 95% of the CO₂ emissions in producing from scratch," the AB website says.

"With glass, this figure goes down to only 30%. And, sadly, much of the glass recycled in Australia actually goes to road-making rather than being made back into bottles. Aluminium is far too valuable for this to happen.

"So cans are lighter, more recyclable, better for the beer, require less energy to transport, less space to store and don't break into lots of dangerous pieces when dropped.

"So why cans? The real question is why you'd ever use glass."

AB operates out of a purpose-built facility in the outer Sydney suburb of Rouse Hill. The facility includes temperature-controlled fermentation tanks, extensive laboratory facilities and refrigerated serving tanks. AB's products include a classic pale ale, a classic German-style steam ale, a light Mexican-style lager, a dark larger and a locally sourced apple cider. The brewery also produces a seasonal brew that changes throughout the year.

After being invited to an Australian craft beer promotion in India, AB secured two distribution deals, becoming only the second Australian brewing company to enter the Indian market (Foster's was the first), and the first Australian craft beer in the market.

With the first 250 cases about to leave Australian shores, the Australian Brewery already has its sights set on other export markets.

Australian Brewery

www.australianbrewery.com



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