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Compact design

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Adjustment via smartphone

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Premier of Victoria Daniel Andrews has moved to Stage 4 restrictions in Victoria and made some significant changes to how food production businesses can operate while the state fights against the COVID-19 pandemic.

On 3 August, Premier Andrews declared the food industry was permitted to continue to operate but he mandated reductions to the number of workers onsite. In the meat industry — and based on the minimum required to operate safely onsite — the workforce will be scaled back to two-thirds. “Unlike other changes, and recognising the risk these sites have posed here and around the world, this will apply to abattoirs in Melbourne and across the state,” the Premier said in his statement.

University of Queensland Professor Robert Henry, who is the Director of the Queensland Alliance for Agriculture and Food Innovation (QAAFI), said roboticised abattoirs and automated harvesting and production facilities would reduce the risk of transmission of pathogens among workers but also the spread of viruses via the food itself.

“COVID does not seem to be transmissible from an infected human touching food but a future pandemic virus might be transmitted this way, so automating the food supply chain reduces this risk. It also minimises reliance on human workers that are not available due to migration restrictions and border closures.”

Apart from robots working in abattoirs, there are a number of technologies in various stages of planning that could also help with food security during a pandemic, such as sky-high vertical farms, more gene-edited foods in our supermarkets and automated farming systems. According to Professor Henry, food producers would now be moving much faster to prepare for the next pandemic.

He said despite growing stocks of foods such as cereals, it was estimated the number of people facing a food crisis will grow from 135 million to 265 million by the end of 2020.

“It may seem to those of us in Western countries that the only impact on food supply has been a rush on pasta and rice in the supermarket and home baking, but the loss of income caused by the pandemic has hit some countries in Africa hard.

“We are in a situation where we have food surpluses while there has been a doubling in the number of people who can’t afford to eat — and the situation is likely to get worse.”

Professor Henry said increased investment in agricultural research and development would support enhanced food security. His research is published in *Molecular Plants*: https://doi.org/10.1016/j.molp.2020.07.011.
Look closely at who supplies the food industry with the very best food safe materials, services and equipment.

What do these companies and others like them have in common?

www.haccp.com.au
Pregnancy warning label will be mandatory

On Friday, 17 July 2020, Food Forum Ministers decided that pregnancy warning labels with a prescribed red, black and white colour scheme will be mandated. Six of 10 forum members voted for the mandating of the warning labels that were recommended by Food Standards Australia New Zealand (FSANZ). Four ministers voted for an alternative scheme which had previously been recommended by the Australian Government.

FSANZ confirmed that the signal words would be changed from ‘Health Warning’ to ‘Pregnancy Warning’ and that the standard would be included in the Australia New Zealand Food Standards Code. The new mandatory label will also require the inclusion of a text statement that “alcohol can cause lifelong harm to your baby”.

While there has been much debate about the cost of implementing such a label, alcoholic beverage manufacturers will now need to implement the mandatory labels on all relevant packaging within the next three years.

Leafy greens safety

Recent outbreaks in the US of foodborne illness associated with the consumption of romaine lettuce and other leafy greens have highlighted the need for a viable option for treating agricultural water against foodborne pathogens.

While farmers are not required to treat their agricultural water, these treatments could be a valuable tool to help farmers protect the safety of their produce intended for consumers.

The U.S. Food and Drug Administration has now announced a new protocol for the development and registration of antimicrobial treatments for preharvest agricultural water, such as the water used in farm irrigation systems. The protocol was developed through a collaboration with the U.S. Environmental Protection Agency.

The EPA-approved protocol can be used to evaluate the effectiveness of treatments in reducing microbial contamination in agricultural water.

EPA’s approval of this protocol allows for companies to develop data on the effectiveness of their products in inactivating foodborne bacteria, such as E. coli or Salmonella, in preharvest agricultural water. Companies may use the data developed to support registration of new treatment products, or amendments to current products’ labels, for use against microbial contamination in preharvest agricultural water.

This protocol is an important step towards addressing this lack of available treatments for preharvest agricultural water.

Closing the loop on PET recycling

Pact Group Holdings, Cleanaway Waste Management and Asahi Beverages have entered into a joint venture, to construct a PET recycling site in Albury/Wodonga.

The $45 million recycling plant is expected to recycle the equivalent of around one billion 600 mL PET plastic bottles each year, with the bottles used as raw material to produce new bottles and food and beverage packaging to help close the loop on recycling.

The plant will draw on the expertise of each member of the joint venture, which will trade as Circular Plastics Australia (PET). Cleanaway will provide the plastic to be recycled through its collection and sorting network. Pact will provide technical and packaging expertise, while Asahi Beverages will buy the recycled plastic for use in its packaging.

Robert Iervasi, Group CEO of Asahi Beverages, acknowledged the contributions from Minister Matt Kean, Federal MP and Environmental Minister Sussan Ley and the Albury Council towards the project.

Construction will commence towards the end of the year, pending approval from Albury Council, and is expected to be fully operational by December 2021.
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*Applies to Australian customers only. $150,000 Instant Asset Write-Off applies until 31st December 2020 with 50%+ depreciation applicable to 30th June 2021.
Sweet treats to be made using 100% renewable energy

Mondelēz International will switch to 100% renewable electricity in two Melbourne factories that make Cadbury, The Natural Confectionery Company and Pascall treats. These treats includes Cadbury Cherry Ripe, Crunchie and Picnic bars, Cadbury Easter eggs and bunnies, The Natural Confectionery Company jellies and Pascall lollies including Pineapple Lumps.

Mondelēz has partnered with a range of businesses across Victoria to establish a power purchase agreement to source renewables from the Yaloak South wind farm west of Melbourne.

Shalaby Mohamed, Director of Integrated Supply Chain for Australia and New Zealand, said the shift to renewable electricity will reduce the company’s carbon footprint in Australia.

“Our investment in renewables will prevent almost 40,000 tonnes of carbon from entering the atmosphere each year, and reduce the carbon footprint from electricity used across our five Australian factories by more than 80%,” Mohamed said.

Mohamed predicts that the company’s investment in renewables will halve the total carbon footprint of the business across Australia and New Zealand.

The power purchase agreement to invest in local renewables, starting in 2021, was facilitated by the City of Melbourne, and includes a range of organisations, such as RMIT University, CBUS Property, ISPT, Fulton Hogan, Citywide Asphalt and Deakin University.

Frozen finger lime market cracked with grant

Green Valley Fingerlimes, a Sunshine Coast finger lime orchard that lost its export and national markets to the COVID-19 pandemic, is rebounding after receiving a $7500 grant under the Palaszczuk government’s $500,000 Market Diversification and Resilience Grant Program.

The grant will be used to buy a new blast chiller and freezer room, enabling the business to diversify from fresh only to frozen finger lime products for Australian and overseas markets.

Company Director Jade King said at least two tonnes of finger limes harvested in the current season would have been lost without the equipment to freeze the fruit. Due to the support from the Queensland Government, the company was able to consider selling frozen products to various export and national markets for the first time.

“We’ve had to turn away enquiries for frozen fruit because we could only meet fresh market demand, so the freezers will give us the opportunity to break into new markets including Japan and the United States that only accept frozen product,” King said.

WA meat processor welcomes $300K state government grant

Western Meat Packers Group has welcomed the WA Government’s $300,000 grant, which will help facilitate further processing of offal and other products at its Cowaramup abattoir operation. Investing in this manufacturing capability will help fully maximise yields from each beef animal and open up new markets.

WMPG’s Cowaramup operation has built its operational capacity over the past 15 years to 70,000 cattle per annum, with most selected from south-west beef producers and distributed domestically and internationally under the Margaret River Fresh brand. WMPG has transformed from a small boning room in 1983 to a trusted beef and lamb exporter and processor, employing almost 500 people. The company now has a weekly processing capacity of 2000 cattle and 1000 lambs that are supplied to domestic and international markets.
Mars Wrigley boosts local chocolate factory

Mars Wrigley Australia has bolstered its local manufacturing capability with a $300,000 investment, to bring new technologies to its chocolate factory in Ballarat, Victoria. The investment will enable Mars Wrigley to produce M&M’s Pretzel locally, bringing the treat to Australia for the first time. The investment also expands the capability for the Ballarat facility to create filled M&M’s and explore more Australian-made innovations for M&M’s.

The Ballarat factory currently has the capacity to produce over five billion M&M’s per year, with M&M’s Pretzel the latest addition to its local production line. The equipment upgrade is part of a broader $37 million investment Mars Wrigley Australia has committed to in 2020, enabling the manufacturer to continue to upgrade the factory to futureproof and advance its local manufacturing capability.

The investment follows the Ballarat factory’s 40th anniversary, which it celebrated in November 2019, and builds on the $14 million invested into the factory to maintain and upgrade its operations in 2018.

Andrew Leakey, General Manager of Mars Wrigley Australia, stated that the company is dedicated to continuing to support Australia’s manufacturing sector. “This latest project is part of our long-term ambition to continue to drive and develop our core bitesize brands that we manufacture locally in Ballarat.”

The Ballarat factory employs more than 350 associates and produces a range of chocolate brands, including Maltesers, Milky Way, M&M’s, Mars, Pods and now M&M’s Pretzel.

Food innovations 2020

From roasted pulse snacks and pickled bamboos shoots, through to medicinal mushroom lagers and organic fermented foods. These are just some of the trailblazing innovations driving the recovery and growth of the food and agribusiness industry.

As the Food and Agribusiness Growth Centre, Food Innovation Australia Limited (FIAL) recognises the critical role innovation will play in seeing industry unlock its potential.

In celebration of Australia’s renowned ingenuity, FIAL has published the fifth edition of its Celebrating Australian Food and Agribusiness Innovations.

The growing case for industry collaboration

While this is the fifth year that FIAL has been profiling Australian food and agribusiness innovations, this edition of Celebrating Australian Food and Agribusiness Innovations is the first of its kind. The over 45 featured innovations all have one thing in common — the businesses behind them all belong to clusters.

Clusters — geographically proximate groups of interconnected companies that benefit from being able to tap into a local ecosystem of knowledge and relationships — are a growing force in Australia’s food and agribusiness industry.

With approximately 180,000 businesses, largely SMEs, scattered across a very large geographical area, the case is growing that clustering is essential for building the capability, capacity and confidence necessary for businesses to innovate and get the economies of scale to compete on the world stage.

FIAL has been a key driver behind food and agribusiness clustering in Australia. Through its Cluster Programme, up to $300,000 of matched funding was provided to four of the clusters included in Celebrating Australian Food and Agribusiness Innovations.

“FIAL is proud to highlight the incredible work Australia’s clusters are doing to support our industry. It has never been more important than today to innovate and back our clusters in helping our businesses, regions and cities grow towards positive futures,” said Dr Mirjana Prica, FIAL Managing Director.

Published by WF Media, Celebrating Australian Food and Agribusiness Innovations features innovations from across the value chain from over 45 Australian businesses.

Keeping track of fresh produce throughout the supply chain

Manbulloo, one of Australia’s largest mango growers, specialises in the Kensington Pride mango variety, delivering fresh mangoes to customers in Australia and overseas.

The company has been supplying fruit to its retail partner since 2005 and has worked closely with GS1 Australia for the past seven years, helping to drive the industry forward with technology and advancements in data sharing.

Manbulloo wanted to improve the process of information flow in its supply chain, particularly the efficiency of communications and business operations between Manbulloo, its ripeners and its customers.

Scott Ledger, Quality Manager at Manbulloo, described the company’s supply chain as fragmented.

The company wanted one product identification and traceability system for the whole supply chain, which each member could access. As well as a carton identifier that anyone in the chain could scan to identify the history of the fruit as the carton moved through the chain.

Manbulloo already had GS1 barcoding embedded in its operations, with each fruit identified by a GS1 Databar label. It made sense to expand the use of the GS1 barcodes to provide improved communications and traceability up and down the supply chain. Ledger added: “The good thing was, because we used GS1, our supply chain partners didn’t need to upgrade or change their technologies.”

Each Manbulloo mango is hand-picked and handled with care throughout the supply chain. Specially designed fruit trays are used to protect the fruit during transport and handling, until it reaches the supermarket shelf.

For Manbulloo to achieve enhanced levels of communications and visibility throughout the chain, the trays also required unique identification. To address this, the company switched its Freshtrack Gateway implementation to print GS1 serialised barcodes on the tray labels. This allowed every tray on every pallet from all seven Manbulloo farms and five pack houses to be tracked up and down the chain.

The company also used Freshtrack FieldOp, an application developed by Freshtrack Systems to complete quality checks on mangoes in the pack houses. The solution collects the information and generates the GS1 barcodes on the fruit trays and directly uploads to a blockchain system, in real time and without any loss in performance. Trust Provenance and Muddy Boots Software were also involved in the Manbulloo initiative.

Trust Provenance provided an integrity system that enabled all data points in the supply chain to be securely stored and accessed via one platform. The data was secured by a distributed ledger infrastructure (blockchain) and made available to supply chain partners with permissions for who sees what. Data points included food safety certificates, real-time temperature data, quality assessments and the location of shipments, all tracked using the serialised barcodes on the mango trays. Each data point is added to the blockchain using GS1 EPCIS event data standards.

With the whole-of-chain network in place, Manbulloo can enter a carton number and see throughout the supply chain where all related mangoes are from that batch. It also enables rapid reporting, and because it links with each system in the supply chain, it records, stores and makes information available in real time, providing flow-on benefits for optimising quality control and management.

GS1 Australia
www.gs1au.org
High-tech potato processing line to be installed in Brazil

One of the largest potato processors in Brazil, Bem Brasil, is adding a multimillion-dollar potato strip processing line to its facility. Teaming up with Key Technology, the new equipment being purchased includes six VERYX digital sorters, an ADR EXOS automatic defect removal system, three Sliver Sizer Removers and 57 Iso-Flo vibratory conveyors on a line designed to process 30,000 kg of frozen French fries per hour.

The company is implementing the technology and equipment to maximise food safety and consistently meet final product quality specifications while improving operating efficiencies and increasing yield.

“We selected Key for two primary reasons — their leadership in our industry and our trust in the company and their solutions,” said Walter Takano, Foreign Trade Manager at Bem Brasil. “Our confidence is based, in part, on years of experience with their Iso-Flo shakers on our other lines. To learn more about their VERYX sorters and ADR systems, we visited Key and then travelled to see the equipment operating at major potato processing facilities in North America and Europe. Overall, Key’s expertise and the reliability of their technology impressed us.”

The sorters will be equipped with a full suite of sorter intelligence tools as well as top- and bottom-mounted sensors to achieve full-surface inspection. The sorters immediately prior to packaging will also feature Key’s Pixel Fusion technology to find and remove even the most difficult-to-detect foreign material (FM) and defects immediately prior to packaging. Images of FM will be time-stamped and archived for retrieval using the Key FMAert feature.

The technology combines all camera views into one all-surface analysed object, which enables the sorters’ Sort-to-Grade (STG) software to automatically maintain final product specifications for both defect and/or length profile without operator intervention to increase yields and eliminate mechanical length grading. The sorters’ Information Analytics software exports real-time individual object data, allowing the company to collect, analyse and share big data across the enterprise to reveal patterns, trends and associations, which can help optimise processes.

Takano concluded, “For us, the single most important thing is taking good care of our consumers. Working with Key, we’ll ensure we produce the ideal final product quality. At the same time, we expect to increase yield and reduce operating costs.”

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Although the volume of apple juice consumed by Australians is fairly consistent, in line with market trends for other juice products, the value of the sector currently stands at $129.8 million, with each person consuming an average of $5.09 of juice a year.

While heat treatment is important in ensuring the safety of juice through pasteurisation or sterilisation, for some products heat plays an important role in the production process itself. As with other juice products (and orange juice in particular), the apple juice market is increasingly fragmented, with new brands and high-end freshly pressed products increasing in popularity. The physical and chemical properties must be considered when they are juiced and processed. Sugar content is typically around 11%, while dry matters vary between 13 and 20% depending on variety and growing conditions.
Processing apples for industrial juice production typically involves the same technological processes, although, depending on the exact production method employed, they may not always occur in the same order. To produce a high-quality product, it is necessary that the treatment processes described below are non-aggressive and do not affect the product in a negative way. Such treatments also guarantee that there is no contamination from external sources.

Another factor to consider is that apples contain starches, which will foul surfaces during thermal treatment. This makes corrugated tube, or even scraped-surface, heat exchangers more appropriate than plate heat exchangers for such applications as they require less cleaning and are more energy efficient.

Because apples are a hard fruit, to obtain the most juice it is important to break them down prior to pressing — a process known as maceration. This mechanical process turns the whole fruits into pulp, and enzymes are sometimes used to increase the juice extraction. Some processes heat the pulp to a set temperature before juice is extracted; a scraped-surface heat exchanger, such as the HRS R Series, is suitable for such purposes. The juice is usually extracted using some form of mechanical pressing, and what happens to the raw (cloudy) juice which is obtained depends on whether a cloudy or clear product is required.

Separation of the various parts of the apple product and pulp is carried out using decanters and clarifiers during various stages of the process. Depending on end use and available heat sources (such as heat left over from pasteurisation), leftover pulp (pomace) may be dried or concentrated for other uses.

Cloudy juice
Where a cloudy juice, which contains particles in suspension which will not precipitate out, is required, the pulp temperature is normally raised from around 10 to 25°C in order to efficiently extract the product, then further heated to 55°C to carry out the enzymatic treatment, which extracts more juice and makes the juice sweeter. The extracted juice is then sent for further treatment.

Clear juice
Producing clear apple juice follows a similar process, but the pulp temperature is raised to 55°C for the enzymatic depectinisation treatment. This removes pectins and other compounds which give the juice its cloudy appearance.

Once the juice has been obtained, it may be pasteurised (or sterilised, depending on market requirements) and, if being sold as an ingredient, it will also be concentrated to save on storage and shipping costs. Both processes may be carried out using heat exchanger-based systems, such as the HRS Thermblock Series of pasteurisers and sterilisers or the HRS Unicus Series of scraped-surface evaporators.

From here the finished product then cooled to around 3°C for storage (either as part of the pasteurisation system or using another separate heat exchanger) before being aseptically packaged, either for the consumer (in bottles or cartons) or for industrial customers (in lined boxes or IBCs).

As can be seen from this brief overview, thermal treatments play an important role in apple juice production, and therefore the energy costs associated can be significant. It therefore makes sense to choose the most efficient equipment for each stage of the process.

HRS Heat Exchangers Australia New Zealand
www.hrs-heatexchangers.com/au

FRUIT & VEGETABLES
Automated COVID-19 contact-tracing capability

Kronos has introduced an automated reporting capability for employee contact tracing that will be available for Workforce Dimensions, Kronos Workforce Central, Kronos Workforce Ready and Kronos iSeries Central customers globally, at no additional charge.

The automated reporting capability has been introduced to help streamline the employee contact-tracing process for many essential business operations across the world. Leveraging data science to analyse labour records and time and attendance data collected by a Kronos solution, the automated reporting capability can generate a simple report that can be used to identify and communicate to employees who may have come in contact with a co-worker who has tested positive or is presumed positive for COVID-19.

An employer can generate a contact-tracing report using only the afflicted employee’s ID number to identify potential contacts, i.e., employees clocked in at the same time and same location as someone testing positive or presumed positive for COVID-19, based on overlapping shifts.

This information can empower organisations to partner with health officials to rapidly notify potentially exposed employees and provide appropriate care, treatment and direction for workers, such as self-quarantining and initiating heightened cleaning efforts. This in turn helps reduce the risk of further virus transmission.

The employee contact-tracing capability is available free of charge with self-service instructions provided for an organisation’s Kronos administrator in the Kronos Customer Community.

The COVID-19 Resource Centre on the Kronos Customer Community provides additional tools and resources to help organisations navigate the pandemic. This includes specific information on how to clean timekeeping devices, access to employee badges, and knowledge base articles to configure systems to meet changing regulatory requirements.

Kronos Australia Pty Ltd
www.kronos.com.au

Pump system for delicate food products

HRS Heat Exchangers has developed a pump that can handle very delicate and viscous foodstuffs without damage while working at high pressure in heavy-duty applications in the food and pharmaceutical industries.

The HRS BP Series Piston Pump is a purpose-designed reciprocating positive-displacement pump. Positive displacement pumps have an expanding cavity on the suction side of the pump and a decreasing cavity on the discharge side. Liquid flows into the pump as the cavity on the suction side expands and is expelled from the discharge side as the cavity collapses. The BP Series features a hygienic design, incorporating a separator between the piston and the hydraulic chamber, to ensure there is no contact between the product chamber and the hydraulic oil, and prevent oil from coming into contact with the product.

The pump features an adjustable flow, which can range from a minimum of 300 L/h to a maximum of 20,000 L/h, with a high-pressure drop of up to 30 bar. This makes it suitable for a range of high-viscosity fluids that are shear sensitive, which contain large particulates. Clap valves allow pumping of whole fruits or vegetables. An alternative pump with a pneumatic cylinder can be supplied for low-pressure applications of less than 5 bar.

HRS has also created the BPM Series, a mobile version of its standard BP Series pump. It is mounted on a mobile skid unit for easy movement, allowing it to be used across multiple production lines and locations. This makes it suitable for food manufacturers producing short runs of specialist products and numerous trials.

HRS Heat Exchangers Australia New Zealand
www.hrs-heatexchangers.com/au/
Auspouch has worked with Zetapack of Italy to address these concerns and deliver practical and straightforward graders suited to a wide variety of Australian and New Zealand produce.

Specific varieties that are suitable include: nashi pears, Golden Delicious apples, apricots, persimmons, peaches and nectarines. Vegetable varieties include tomatoes (including truss varieties), capsicums and zucchini.

Produce can be graded by weight, size and colour, ensuring customer specifications for each batch and pack format can be met.

The Zetapack approach is to use machine-based grading and human operators in partnership, which results in accurate sorting of the fruit while maintaining the soft handling that a human operator can provide. By eliminating the human decision process, accuracy and efficiency can be improved across full packing shifts.

The system uses a method of electronically grading each piece and assigning it to individual operators. Each operator is alerted to their designated fruit or vegetable using a moving LED bar at each workstation. If a fruit or vegetable is unpicked, it merely moves around another time to be picked, reducing waste.

The equipment measures the number of pieces of each grade picked throughout each session, giving managers an accurate record of pack-out statistics and packing efficiency.

The Zetapack graders are suitable for:
- soft, ripe and delicate fruits;
- oddly shaped fruits and vegetables;
- bunches and tresses; and
- hard fruits at lower production volumes — where it’s not feasible to use or change over a high-tonnage grader.

The graders are designed to be efficient at production rates down to 1–2 tonnes per hour, which makes them suitable for niche varieties and smaller packing sheds. The graders are compact and only require a small footprint in a packing shed.

With a plug and play design, the system can be installed quickly and easily using local resources. It is simple to maintain with no reliance on overseas technicians for installation.

AUSPOUCH
www.auspouch.com.au

Grading fruit and veggies of all shapes and sizes

Grading fruit and vegetables for size and appearance is becoming increasingly important in today’s domestic and export markets. Solutions often require significant investment and can be unsuitable for delicate fruits and odd shapes, or don’t match the smaller scale required for particular crops or varieties.

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Beverage producer Bidco, in Kenya, has installed a NitroHotfill line from Krones, which combines two advantages: firstly, it hot-fills the products and therefore doesn’t require any additional preservatives, and secondly, it doesn’t require the use of any thick-walled PET containers.

Kenya’s demand for more healthy products is on the rise so opting for a technology that could bottle beverages with a juice content without preservatives was one of the determinant factors behind Bidco’s choice of Krones.

“This Krones technology offers us a major advantage: we can do without preservatives, and nonetheless don’t have to use any thick-walled containers reinforced with vacuum panels,” explained Bidco’s Board Chairman, Dr Vimal Shah.

The moulds for the 0.3, 0.5 and 1.5 L bottles were developed by Bidco in conjunction with Krones. Here, the company opted for wide-neck containers with a neck finish diameter of 38 mm.

As an alternative to conventional hot-filling, the NitroHotfill process uses nitrogen, which is dosed into the bottle after the filling function has been completed. This increases the internal pressure and equalises the shrinkage behaviour.

After the bottle has been capped, its head-space is then sterilised by bringing the bottle to a horizontal position and thus enabling the product at a temperature of 85°C to fill the entire head-space. After subsequent re-cooling to ambient temperature in the LinaCool, approximately 0.3 bar of nitrogen remains in the bottle, which increases the stability and thus the transportation characteristics of the comparatively lighter PET bottles as well.

Bidco sees its entry into the beverage market as an important step forward for expanding its range of consumer goods — and many other beverages are set to follow.

Dewatering press for pre-processed vegetables

The KRONEN Dewatering Press DEW 200 removes excess liquid from products such as canned, pickled or defrosted vegetables. These pre-processed vegetables are often used as fillings of various products such as cold cuts, sausages, stuffed pasta or other delicatessen products. Before processing the ingredients further, they can be dewatered efficiently with the DEW 200.

The machine is loaded with a perforated standard container of 200 L in which the product is filled. The mobile standard container is inserted into the machine and held in a fixed position using a snap-in mechanism. A plate lowers onto the product, which is gently dewatered by the pressure exerted evenly over this plate. The exerted pressure is set using weights between 60 and 210 kg and a selectable throughput time from 1 second to 16 minutes. The processing capacity per hour varies with the product and the set throughput time. Two-hand operation ensures a high level of occupational safety.

The hygienic design and the purely pneumatic operating mode ensure low-maintenance operation. Its stable construction is completely made of stainless steel AISI 304 and is quick and easy to clean and therefore suitable for industrial applications.

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Start-up develops sugar-reduction tech for orange juice

Better Juice, a foodtech start-up that developed innovative technology to reduce all types of sugars in orange juice, has announced that its patent-pending technology is now scaling up. The start-up is installing a semi-industrial pilot plant that will be available for future testing at global partners’ plants. The pilot plant features the company’s sugar reduction process in a continuous flow technology that is designed to provide a consistent, safe and effective enzymatic process.

The enzymatic technology uses all-natural ingredients to convert fructose, glucose and sucrose into prebiotic dietary fibres and other non-digestible molecules. The company’s new pilot plant system is able to reduce up to 80% of simple sugar in orange juice at a rate of up to 50 litres/hour. The non-GMO technology is designed to target the specific sugar composition in the orange juice to naturally create a low-calorie reduced-sugar product that has a delicate sweetness, without using any sweeteners or additives to replace the sugars in the juice.

Better Juice has signed collaboration agreements with many global juice producers, and aims to attain full industrial scale and supply to the market within a year, according to Eran Blachinsky, PhD, founder and CEO of Better Juice.

“Soon, you will be able to see natural juice beverages with more favourable Nutri-Scores,” Blachinsky said. Nutri-Score is a food label system that converts the nutritional value of products into a clear letter and colour code on the packaging in Europe.

“Juice and beverage manufacturers are increasingly aware of the need to reduce the sugar levels in their products before new labelling initiative goes into action. By using Better Juice technology, this will be easy to achieve,” Blachinsky said.

One of the challenges in continuous flow reduction of sugars in natural juices is keeping the process contamination-free, without damaging the enzymatic activity. Better Juice developed a device crafted from stainless steel, with aseptic fittings and welding, with a unique process that provides a continuous, safe flow for its enzymatic sugar-reduction process for weeks at a time, without interrupting the sterilisation stage.

Gali Yarom, Partner, COO and VP of Business Development for Better Juice, stated that the scale-up pilot plant is designed for smooth implementation into the standard procedures used by the juice industry.

“Better Juice’s new tech process is cost-effective by virtue of its ability to maintain the continuous flow stage. This is a key factor for beverage manufacturers seeking to affordably reduce sugars naturally while maintaining the juice quality and clean label attributes — a real game changer for the juice industry,” Yarom said.

Cleaning and sanitising solutions

PathoSans is a Melbourne-based company whose vision is to create safer and environmentally friendly effective cleaning and sanitising solutions. Using ECA technology, it generates these solutions using only three ingredients — salt, water and electricity — creating two separate food-grade/food-safe solutions: PathoClean, a dilute sodium hydroxide cleaner and degreaser; and PathoCide, a hypochlorous acid sanitiser which is claimed to be twice as effective as bleach and kills up to 99.9% of pathogens.

The PathoSans solutions are designed to aid by mitigating the risks associated with the long-term exposure to harsh chemicals like those of traditional cleaning chemicals.

The products are suitable for use in cafes, pubs, bars, bakeries and food/hospitality Industry.

Suitable for sensitive skin and eyes, the products are available in 750 mL spray bottles, 10 L drums or 1000 L IBC Tank.

Spraying Systems Co Pty Ltd

www.spray.com.au

Disinfection robot

OMRON Asia Pacific has launched a disinfection robot called LD UVC. Developed in partnership with Techmatics Robotics, the robot is designed to enable organisations to fight the spread of infectious diseases. The UVC light breaks down the pathogens’ DNA and RNA beyond recover, thus preventing them from replicating. The robot navigates autonomously and disinfects premises including high-touch areas by eliminating airborne and droplet bacteria and viruses, by delivering the precise dosage of UVC energy.

Featuring lasers and passive infrared (PIR) motion sensors for motion detection and avoidance, the robot manoeuvres through narrow corridors, elevators and automatic doors. It also shuts off its UVC light upon human detection, providing safety. Suitable for indoor spaces, the robot follows a mapped route, reducing the requirement of manpower resources needed for manual cleaning. Bumper, sonar and emergency stop also provide additional safety.

The machine features an automatic charging and smooth touch interface for control, and is suitable for facility management across hospitals, hotels, food and beverage, hospitality, shopping malls, event venues, airports and corporate offices. Simple installation of software enables the robot to run with minimal installation time, with no modifications or reconstruction of the worksite required.

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Waterproof conduit pipe panel PC

Backplane Systems Technology has introduced Winmate’s IP69K Stainless P-Series with Waterproof Conduit Pipe Panel PC.

Features include screen sizes ranging from 15~23.8”, with P-Cap Touchscreen to ensure a user-friendly, multi-touch experience and a waterproof conduit pipe for extra cable protection.

The unit is engineered to be suitable for operations in demanding environments that call for uncompromising hygiene requirements, such as in the food, chemical or pharmaceutical industries.

The panel PC consists of SUS304 stainless steel. The housing is full IP69K-rated water, dust and corrosion-proof, withstanding extensive washdowns with corrosion resistance against cleaning agents, especially against close-range high-pressure (up to 30 bar) and high temperature (up to 80°C) washdowns.

The custom-built waterproof conduit pipe is preinstalled to give an additional layer of protection for the peripheral cables connected to the device. The included air vent valve comes with an automatic mechanical system to act as a safety device that controls and maintains pressure without the user’s assistance to avoid air-related problems.

The projective capacitive technology delivers responsive performance, even in extreme environments, by supporting multi-touch and allowing for the user to operate it easily with fingers.

The unit is available with versatile mounting options, including panel, yoke and VESA mount, for installation in all industrial scenarios. Equipped with a high-performing Intel Core i5-7200U Kaby Lake processor, the unit can easily handle multimedia content. The wireless connectivity is not compromised thanks to the support for Wi-Fi and Bluetooth for real-time communications and data transfer.

Chocolate melter

Chocolate machinery designer and manufacturer PTL has launched its latest chocolate melter, the PTL Melter V20. The machine has been designed to meet its customers’ demand for faster production process and more flexibility for producing more SKUs with shorter lifecycles.

As product melting capability is central to this, the company looked at its melter from the ground up, with the aim of delivering a machine that could support increased production, lower costs and greater agility.

According to the company, the PTL Melter V20 has a melt rate that is up to 125% higher than previous melters. The changeover process has also been transformed. Masses/coatings can be quickly switched and washdown is fast and simple, with a focus on allergen cleanability. For example, all product contact surfaces are removable or accessible for cleaning.

The machine has a 45% smaller footprint and a self-contained, plug and play design. Easy to fit into any production area, it can eliminate the need for a tank/kettle strategy and for long pipe runs, as it can be situated next to use-point.

Designed to melt multiple SKUs, manage allergens and minimise downtime, the chocolate melter is the result of research with multinationals and co-manufacturer customers throughout the US and other markets, and R&D by PTL’s expert team.
A revolutionary mixer/tumbler
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Manual swabs and continuous sampling sheets

A non-destructive test method for indicator organisms plus pathogens including *E. coli* O157 and *Salmonella* in beef trim is now available. When used as directed, MicroTally Manual Swabs and Continuous Sampling Sheets can provide an organism recovery rate greater than or equivalent to the N60 or N60+ method for detection.

The Continuous Sampling device requires a swab to be placed in a bracket at the end of the conveyor line. Microorganisms are collected on the swab as the beef trim passes over the top of the swab before falling into the Combo Bin. Using this method allows the majority of beef trim pieces to be tested, providing a more representative sample in comparison to current methods.

For situations where a Combo Bin is not filled by a conveyor belt, the MicroTally Manual Sampling swabs can be used. Simply use the cloth to manually wipe the pieces of beef trim at the top of the Combo Bin.

Implementing MicroTally Manual Swabs and/ or Continuous Sampling Sheets can provide a safer beef product coupled with reduced labour and sampling costs for processors.

**Australasian Medical & Scientific Ltd**  
www.amsl.com.au

Retractable tank cleaner overcoming shadowing

In some manufacturing industries, scum lines and shadowing from mixing blades or internal pipework make tank cleaning difficult. But with the aid of a new type of retractable tank washer, these issues can be overcome.

The UKD Retractable Tank Washer can be placed on the top or along the sides of a tank without interfering with the mixing blades. The reason is, only the hollow cone washing head is located within the tank while the rest of the unit sits outside the tank wall.

Using a pneumatic drive, the washing heads move through the tank to target every hard-to-clean area. The unique design of the Retractable Tank Washer also allows for additional, short cleaning cycles to be programmed into the usual cleaning sequence. These shorter cleaning cycles can be used to target the underside of internal mixing blades, scum lines or other difficult-to-reach areas in each tank.

By using these short cleaning cycles, a concentrated volume of water can be focused for greater cleaning impact. In addition, multiple short cycles can be programmed to provide concentrated cleaning, as many times as required, over difficult points.

Designed and manufactured in Italy, the device is made from AISI 316L Stainless Steel and EPDM. The cleaning head is fixed with a tri-clamp for easy access for servicing. The standard hollow cone washing heads have a 100 L/min capacity at 3 bar but customised designs are available.

This new type of tank washer is suitable for use in the pharmaceutical, chemical manufacturing, dairy, brewery, winery or food and beverage industries. In fact anywhere that uses mixing tanks as part of the manufacturing process.

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There is no room for compromises when it comes to hygiene in industrial food production. Manufacturing equipment and rooms need regular cleaning. Biofilms and other fouling deposits may not be allowed to gain purchase under any circumstances.

The success of cleaning efforts has an impact on hygiene and food safety. Although the task of cleaning plants and equipment is demanding and a determining factor of quality, much of this labour is still done manually. But despite all the vigilance of diligent cleaning crews, their work is hard to reproduce, prone to errors and time-consuming.

This has prompted a research team at the Fraunhofer Institute for Process Engineering and Packaging IVV in Dresden to develop a modular cleaning robot, two variants of which are now up and running.

Production lines and hygiene zones have to be spotlessly clean, and absolute cleanliness is critical wherever food is processed. Now, Fraunhofer researchers have designed a mobile cleaning device that sanitises equipment and production spaces to standards in a reproducible way. Equipped with self-learning and autonomous motility systems, this robot automatically detects the degree of fouling and selects the appropriate cleaning procedure.

Robot that cleans production lines to hygienic standards
One travels down the production line on a conveyor belt, cleaning the equipment from the inside, and the other cleans the floor, ceilings and walls of rooms and machines’ outer surfaces.

**Smart robot cleans indoors and out**

An extendable robot arm carrying a rotary jet cleaner can stretch to reach high spots on the production line. This mobile, modular machine with the ability to independently scoot across the shop floor goes by the name of Mobile Cleaning Device 4.0 (MCD). The Fraunhofer IVV has teamed up with the Fraunhofer IOSB-AST at Ilmenau in a research project to look into a multi-sensor system for harsh environments. It is to be installed in the MCD.

This system employs an interesting method called fluorosensing to spot contaminations. The installed sensors scan and calculate the degree of fouling for the robot to adaptively adjust cleaning parameters such as pressure and the amount of foam cleaning agent to suit the situation.

“A detector uses UV light to identify fluorescent particles such as fats, oils and proteins, and doses the foam and water according to the determined parameters, such as the layer thickness and dryness of the residue. This is to be accomplished by a self-learning AI system that selects the suitable cleaning parameters and specifies the process steps,” said Max Hesse, team leader at the Dresden branch lab for Processing Technology, explaining how this procedure works.

A simulation enables a virtual twin to render the data while this process is underway. “The virtual twin serves to map the detected fouling to a 3D model of the plant. The water pressure can then be adjusted and reduced, depending on the distance between the device and the surface — all in the interest of using resources efficiently.”

**Sensors for adaptive cleaning**

The battery-powered robot moves autonomously with nothing but a hose for the cleaning agent connecting to the docking station. It is controlled via Wi-Fi.

Advanced sensors paired with AI enable this adaptive cleaning. A radar sensor is able to take readings even through spray, mist and steam. An ultra-wideband sensor gauges the position in the room. A third sensor, an optical fluorosensor, detects fouling and conveys an impression of the object’s geometric properties. Experts call this visual odometry.

The system extrapolates the process parameters from the detected fouling levels and fused sensor data. It also monitors the process on the fly to make sure the cleaning is being done properly. In the next step, it sends the results of its check to the virtual twin with the self-learning capability. This way, the system improves itself with each pass to achieve excellent results while sparing resources.

“Our tests have shown that this can save up to 50% on cleaning agents because no more than the actually needed amount is applied to the surfaces,” Hesse said. “The system can be trained to clean as resource-efficiently as possible within a given period; for example, during the nightshift downtime in a factory operating in two shifts. What’s more, there is considerable efficiency potential to be tapped if the skilled workers that had been doing the cleaning can perform other tasks while MCDs handle the paralleled cleaning processes.”

The benefits do not end there: an automated routine documents the entire cleaning process and all that automation ensures the procedure is highly reproducible.

**Other applications and benefits**

The MCD’s application range is not limited to the food industry. This smart robot can serve other lines of business well; for example, the automotive, pharmaceutical, medical engineering, cosmetics and agricultural sectors. Diverse industries can benefit from the autonomous robot cleaners in times of crisis such as the corona pandemic.

“Our automated system really shines when staff is in short supply. Around 10% of employees in food production are tasked exclusively with cleaning,” said Hesse, an engineer by trade. This requires skilled workers who are scarce even in ordinary times.

Both robot variants are evolving as the research continues, so they will be able to execute ever more complex cleaning tasks.
Fibreglass media traps

Known as media traps, safety traps or resin traps, these devices are used in a variety of applications to monitor and prevent the loss of expensive media in the event of a filter malfunction.

Until now, they could only be made using two materials — stainless steel, which can be manufactured in any size, and PVC, with its inherent size restrictions. Now there’s a third option, which can provide large, customised media safety traps without the high cost of stainless steel fabrication.

Italian filter and nozzle manufacturer ILMAP has released a range of fibreglass media traps that can be manufactured to any size. The cost of these units fits between the cost of comparably sized stainless steel and PVC media traps.

Whatever the application, media safety traps are used to control the loss of expensive resins, carbon or other media. They are also used in ion exchange columns, pharmaceutical resin treatments, food manufacturing processes and water treatment applications.

A media safety trap allows operators to monitor for any media leakage and diagnose the problem without shutting down production and avoiding the expensive process of removing the media to check for leaks.

The ILMAP media traps can be installed in new sites or retrofitted into existing filters — all customised to size and in a choice of stainless steel, PVC and now fibreglass. They also have the option of including pressure sensors which provide an automated warning about media leakage.

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Antimicrobial film for coronavirus protection

UniPrint’s antimicrobial film has recently passed certification that proves its efficiency in combating the viral load of coronaviruses. The characteristics of antimicrobial protective film were shown to reduce coronavirus viraemia by 95% after a contact of 15 min, and nearly 99.9% after a contact of one hour (compared to an untreated membrane).

The innovative antimicrobial film is made of clear cast PVC with a thickness of 60 µm. It contains antimicrobial agents that inhibit and neutralise the growth of microbes on its surface. This technologically advanced film has been tested by the Pasteur Institute and proven to quickly inhibit bacteria and coronaviruses, preventing their spread.

The antimicrobial film is smooth, waterproof, a non-irritant and compatible with a range of cleaning protocols. It is also resistant to most chemical agents, alcohol, dilutions and oils. The antimicrobial activity can be maintained after 365 cleanings with water, alcohol and chlorine bleach.

The antimicrobial adhesive film is designed for antimicrobial protection of surfaces in the workplace, providing an easy-to-install approach to high-traffic surfaces where hygiene protection is required. It is fully conformable with a matte finish.

It is suitable for indoor and outdoor use, and can be applied to any sign or printed material. The film can be used to provide protection for public areas, hospitals, public transport, gyms, aged care and offices. It is suitable for furniture (communal dining tables, reception benches and chairs), touch screens, counters, windows, equipment and any high-traffic/high-touch surface areas.

The antimicrobial film can be used as an added layer to coronavirus protection plans.

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Arm-mounted human-machine interface
The Advantech SPC-800 series are arm-mounted human-machine interfaces (HMI). Featuring an integrated support arm system mount adapter and a customisable extension unit, these devices facilitate diverse visualisation and control applications.

With IP66-rated ingress protection and IEC 61131-2/61010 certification, the product is robust and suitable for operation in a wide range of industrial environments. The extension unit supports several peripherals and controls such as an RFID reader, key-operated selector switches, LED indicators, push buttons and emergency stop buttons.

The integrated mount adapter supports both pendant and pedestal mounting to enable good positioning and ergonomic control. Available in a 15” or 21” form factor, the SPC-800 series are ultra-slim (25 mm wide front bezel), lightweight and have a snap-fit design that allows for single-person installation, for easy deployment.

The SPC-800 series is equipped with a support arm mount adaptor that allows the system to be deployed outside the control cabinet. Cables are routed through the swing arm to an I/O wiring area that can be accessed without dismounting the device. This not only provides easy access to the power supply, Ethernet and USB ports, but also enables the use of standard connectors. The integrated mount adapter supports both CP 40 (Rittal) and CS-480 (Bernstein) suspension systems for pendant and pedestal mounting to enable good positioning and ergonomic control.

Advantech Australia Pty Ltd
www.advantech.net.au

Sensor for CIP processes
The Liquitrend QMW43 is the latest innovation designed to optimise the clean-in-place process by reducing time and resources consumption at each cycle.

Where manual inspections and longer cleaning cycles were usually adopted as safety margins at critical installation points, the Liquitrend QMW43 smart sensor is able to measure build-up and conductivity of pipes and tanks where cleaning is difficult. The flush installation stainless steel (316L) replicates the same condition as the inner side of pipes and tanks, giving a valid build-up reading before and after the cleaning cycle.

Combining capacitance and conductivity measurement, the sensor is able to identify not only chemicals but also different products inside pipes without the need for visual inspections or lab analysis to prevent incorrect mixing and reduce contamination risks.

With both analog outputs and IO-Link communication capabilities, full documentation and traceability can be easily achieved to ensure compliance and safety standards are met.

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In high-volume distribution centres, sensors record and communicate thousands of pieces of logistics data every day, but the challenge is compiling and interpreting all that data. SICK’s Package Analytics software aggregates this data to help you visualise all SICK sensor data so you can make timely and informed decisions for your logistics operations.

From an individual package on a conveyor to an enterprise that processes millions of packages per day, Package Analytics software helps drive timely decisions in high-volume distribution centers with comprehensive, real-time performance monitoring. Unlike sortation vendor reports that show simple read rates, Package Analytics quickly retrieves comprehensive package data based on relevant characteristics. This software boosts the traceability, accuracy, and efficiency of your sortation operations.

Package Analytics software allows you to retrieve and analyse system performance information as well as the status of all recorded data with ease — from an individual package on the conveyor to an overview of the millions transported each day. This provides operators with direct access to the key variables for the materials flow, allowing them to understand and control these variables in a more appropriate way. The dynamic database solution simplifies the processes of monitoring, analysing, and creating reports, while images or videos of the packages can be pre-filtered and analysed with ease in line with predefined selection criteria.

High scalability and remote access
Package Analytics software can record and visualise the barcode quality and read rate of an individual system. In addition, the high-performance client/server platform can be used across several systems on a single site or even networked over multiple locations. The service and support team offers exceptional system throughout without the hassle of a call-out — the SICK Meeting Point Router (MPR) provides safe and reliable remote access worldwide to the systems and plants listed in the Package Analytics software.

Key features and benefits
• Ability to monitor, analyse and optimise all processes from individual identification systems to multi-site enterprises
• Improved operating times thanks to rapid notifications and cause analysis
• Simple image and data exchange to meet customer conformity requirements easily
• Shorter response times with automatic notifications of ‘no reads’ or other unusual incidents
• Inspections of package conditions to reduce liability claims and support cause analysis in the case of processing errors
• Increased system performance thanks to exceptional visualisations of system operations

Data gathered by intelligent sensors is full of rich information for your operations, but data is only as powerful as the analysis. Package Analytics makes sense of this valuable data to help you make decisions that increase productivity and efficiency.
Magnetic separator range

GEA has expanded its Aseptomag magnetic separator range, with the manually switchable MAS H version, featuring a patented locking mechanism, and a pneumatically switchable MAS PA version for cleaning-in-place (CIP) processes. GEA’s Aseptomag magnetic separators enable customers in the food, pharmaceutical and chemical industries to improve product quality, prevent plant from damage and increase plant availability.

Magnetic separators prevent downstream production machines from damage by efficiently separating foreign particles. The magnetic separators remove metallic contaminants from products, thus preventing equipment damage and reducing the risk of production downtimes. Much like the basic version MAS B, the switchable type MAS H is cleaned ‘out-of-place’. For this purpose the magnetic unit is removed from the housing for manual cleaning.

While the MAS B features a constant magnetic field, the MAS H magnetic field can be deactivated by a hand lever, so that the magnetic force on the rods is cancelled and the accumulated particles are released by themselves. A patented locking mechanism is designed to ensure that the magnetic force can only be released after the unit has been removed from the housing, and that the magnetic bars are again positioned in the product area when reassembling the unit.

The MAS PA can be fully integrated into automated processes. Prerequisites for this include standardised CIP processes and a bypass valve for the removal of foreign particles. A pneumatic actuator removes the magnetic debris from the product area without manual intervention; the accumulated particles are then automatically released from the bars and discharged into the product area.

GEA Australia
www.gea.com

Automated hand hygiene systems

Handwashing has never been more topical than in these times of COVID-19. However, in the food and beverage processing sector, hand hygiene has always been one of the top priorities of food industry quality or production professionals.

There is a great deal of documented studies and papers in relation to “best practice” methods for cleaning hands. Much of this has not changed for many years. Clean hands have always relied on the individual taking appropriate care and time to ensure a hygienic outcome. However, relying on everyone in a facility to take hand hygiene seriously and clean their hands to the same consistent and high standard can be difficult to achieve. The reality is some will wash for different lengths of time, use different amounts of soap, hot water and also how they use mechanical action to clean things like creases, nails and other parts of the hands. Inconsistent handwashing practices has also led us to an over reliance on alcohol-based hand sanitisers as a second line of defence.

Meritech, a US-based company specialising in automated handwashing systems, has taken the subjective nature out of washing hands with its range of CleanTech Automated Handwashing Stations. The technology is designed to use less water and reduce the time taken handwashing. Using compliance tracking, the system is claimed to ensure 100% consistent wash outcomes, with 99.9% of harmful pathogens removed, including COVID-19. The handwash stations are FDA approved and fully validated.

W R & D Wells (Wells Hygiene) is the exclusive distribution partner with Meritech USA for the Australian and New Zealand regions.

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$9m raised to develop process-based AI solution

Based in Israel, Seebo has announced the completion of a $9 million funding round, led by Ofek Ventures, with the participation of Vertex Ventures, and existing investors Viola Ventures and TPY Capital.

The company will use the funding to further expand its global reach and continue enhancing its process-based artificial intelligence (AI) solution. The solution enables manufacturers to predict and prevent production losses and master complex production processes, which is designed to save costs for users.

There is a growing demand for the company’s AI solution, as manufacturers seek new ways to prevent losses and optimise their processes. Current users include Nestlé, Barilla, Mondelēz, Allnex and the Volkswagen Group.

Ofek Ventures partner Itay Rand said he was excited to be investing in the company. “Manufacturers today understand that in order to compete successfully they must adopt effective process optimisation capabilities, and there is a clear recognition that industrial artificial intelligence and a data-driven approach is fundamental to achieving that goal,” he said.

According to Lior Akavia, Seebo CEO and Co-Founder, in order to prevent losses and continuously master complex production processes, manufacturers need a technological solution that understands the unique complexity of the production lines, is scalable across various manufacturing lines and is easy for production teams to use.

The coronavirus (COVID-19) pandemic has also changed the face of manufacturing, with companies having to adapt to shifting customer demand. Manufacturers have faced supply chain disruptions, implemented new regulations for employees and moved towards optimisation of remote processes.

“The coronavirus pandemic has spurred a search for more efficient, effective ways to identify and prevent process inefficiencies overall — which lies at the heart of what Seebo does. Data-driven decision-making is critical in our new reality, as manufacturers must adapt quickly and implement changes effectively. Those manufacturers who meet this challenge today will gain a competitive edge in tomorrow’s marketplace,” Akavia said.
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Automated packaging machine builder HMPS recently partnered with SMC Corporation Australia New Zealand to design and custom fit one of its robotic pouch unloader cells with a retrofitted vacuum head for off-loading pouches of pet food from a retort.

Pouches have increased in popularity over the years as a flexible packaging option, and using a vacuum system to handle this packaging option remains a good solution.

“This customer has an old compressor in their factory and requested a solution that is more energy efficient in terms of compressed air,” explained Sergio Palacio, Project Engineer for HMPS.

“Compressors can be expensive to replace; our customer wanted to automate their line without causing unnecessary downtime, additional costs or drastic changes to the rest of the plant.”

Based on the brief from the client, HMPS looked to the modern vacuum technology produced and supplied by SMC to help with the solution.

“We chose SMC’s vacuum products because of their reduced air consumption while offering continuous vacuum where required. We looked to deliver a more efficient and powerful solution with a specially designed and engineered vacuum head,” Palacio said.

Jason Sutton, SMC Area Sales Engineer, said their design departments worked together to deliver an innovative solution. The specially engineered vacuum head used in this application is made up of standard SMC vacuum products — including the ZH vacuum ejectors and ZP vacuum cups — but has been engineered into a unique multifunctional and energy-efficient vacuum design.

“The pouches are wet with traces of chemicals and, as such, we used the ZH series to help take away any water and chemicals whilst protecting the vacuum system,” Sutton said.

“The multi-bellow pads fitted in our vacuum cups (ZP series) are made for quick release and reduced consumption. Because there is no chamber the vacuum response time was immediate, and no air is delivered to a vacuum cup unless it is in use.

“Here, as soon as the air shuts off, atmospheric pressure enters and the multi-bellow pads expand like a spring to assist with the easing of pressure and tension, releasing the product immediately.”

SMC made use of SMC’s IP65 rated stainless steel products, which are designed to withstand the wet and humid conditions in the factory and meet the health and safety demands.

“Components for this application were specifically selected to withstand caustic acid washdowns,” Sutton said.

From SMC’s side, the design for the solution was led by its engineering department in New Zealand, headed up by Sergey Vetrov. “Through the unique combination of a new vision system and SMC’s vacuum head, the customer is enjoying less waste, faster speeds and a reduced cycle time of 15%,” Vetrov explained.

According to Vetrov, this robotic cell can process 576 products per minute and is able to handle four different pouch sizes and four different gravy contents. “It’s important to note that the gravy affects the shape of the product and the performance of the vacuum head. The vacuum cups used for this application adjust to ensure constant suction when required. This same technology can be applied across an array of products in pouches such as soups, rice, biscuits, etc.”

The latest machine for this pet food application is said to perform far better than its predecessor and has achieved 28% in energy savings. As a result of the success, the customer now plans to retrofit the vacuum head on an additional three machines.

SMC Australia | New Zealand
www.smcanz.com
Control head with IO-Link technology

The degree of automation in production plants in the food, dairy and beverage industry is constantly increasing. This also increases the demand for intelligent field devices. Sooner or later this leads to a confusing multitude of interfaces with different mechanical and electrical characteristics. In general, a solution to this challenge is called IO-Link and GEA’s TVIS actuators are now available with this technology. In addition to the 24 V, AS-i and DeviceNet communication types already available in the TVIS range, the IO-Link technology will now enable GEA valves to make the step into the industrial 4.0 world. IO-Link provides customers with a standardised solution that simplifies installation and offers extended diagnostic and parameterisation capabilities.

The TVIS actuator range for GEA valves can provide efficiency benefits in the design and operation of food, dairy and beverage production and processing plants. Real-time diagnosis of data and direct access to sensor parameters, especially during valve set-up and maintenance, improve the handling and operability of the valve unit. Problems can be anticipated before they escalate. The technology also enables greater plant effectiveness, identification of performance trends and reduction of downtime.

With the TVIS control head with IO-Link technology, GEA presents the consistent further development of the previous connection technology for sensors, actuators and thus also for control heads of the latest generation. IO-Link is a globally standardised IO technology (IEC 61131-9) for communicating with sensors and also actuators down to the field level. The powerful point-to-point communication is based on the long-known 3-wire sensor and actuator connection without any additional requirements on the cable material.

An IO-Link system consists of an IO-Link master and one or more IO-Link devices. The IO-Link master represents the interface to the higher-level control level (PLC) and controls the entire communication with the connected IO-Link devices. This makes the system an intelligent solution at the field level.

GEA Australia
www.gea.com

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Linear gantry handling solution

The Festo EXCT high-speed gantry system is claimed to deliver 30% higher performance than traditional gantry systems. It provides advanced dynamic positioning and motion control in pick-and-place and assembly applications.

The EXCT handler is a 2-axis linear gantry that uses parallel kinematic principles to deliver good dynamic movement in the vertical and horizontal axis. A single belt, which is driven by two motors runs throughout the system, makes it more efficient than typical T-shaped gantries that have two separately operated axis, one each on the y-axis and z-axis. Higher loads can be transported with a high dynamic response, as the two motors are stationary and not transported as part of the system. As a result it can deliver precision positioning with higher acceleration and torque, as well as minimal vibration.

Festo Pty Ltd
www.festo.com.au

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Handheld inkjet printers

Trend Marking Systems will showcase at Foodtech Packtech a range of handheld inkjet printers, including the new jetStamp 1025 model. These handheld units are capable of printing text or logos on a wide variety of products like cartons, bottles, jars and pouches — absorbing uneven or round surfaces with ease or even printing on concave container bases or across the wrinkles of a bag.

With solvent ink cartridges, materials such as metal, plastic and glass can be printed without smudging.

To operate the printers, users simply hold in place and press the print button in the handle and the printer creates the print in under a second. There is no need to use a conveyor or packing system so the machines are able to be used offline.

Trend Marking Systems
www.trendmarking.com.au
Rack Armour is the simple superior solution to pallet racking damage caused by forklifts.

Rack Armour is a patented product, locally manufactured and internationally recognised.
**Pencil style air velocity transmitters**

The Series AVPT Pencil Style Air Velocity Transmitter from Dwyer Instruments uses thermal anemometer technology to provide stable air velocity measurements in imperial and metric units, across ranges of 1000, 2000, 3000, or 4000 FPM (5, 10, 15 or 20 m/s). The series can be configured with either a voltage output or BACnet MS/TP communication to provide universal inputs to a variety of monitoring equipment. Models are available with fixed cable lengths of 20” or 78” with flying leads or a 5-pin M12 connector on a 24” cable. Probes are available in lengths of 6” or 12”. A mounting flange included with the product provides the ability to vary insertion depth.

Models are available in 3 or 5% accuracy to suit a variety of applications, while the optional BACnet MS/TP communication protocol allows units to be daisy-chained to provide access to all of the velocity and temperature measurements.

**Flow measurement data visualisation software**

The Micro Motion ProcessViz from Emerson is a standalone software solution for flow meter process data visualisation. Having an instant visualisation of raw process data translate into direct actionable information helps plant operators in the food and beverage, chemical, and oil and gas industries reduce the time needed to identify a problem in the flow process. The software can potentially save a facility money by reducing the need for stoppages or shutdowns to diagnose the source of a problem.

The software supports Micro Motion Coriolis transmitters with data historian output capabilities, such as the 5700 and 4200 models, and provides a snapshot of a moment in the flow process. With the software, technicians or plant managers won’t have to manipulate data to see what is happening in the flow. The data is available in a usable format that allows the user to identify and analyse process issues.

**Beer centrifuge**

The Alfa Laval Brew 20 is a beer centrifuge that can be used for many different purposes in the brewing process, including pre-clarification, green beer separation, hot wort separation and beer recovery.

The centrifuge is suitable for brewpubs and microbreweries, with a range of applications. Its Axial-Hermetic seal and plug-and-play skid make the device suitable for use in the beverage production industry as they are simple to operate, have low maintenance costs, and provide fast and easy installation. The Axial-Hermetic seal also minimises oxygen pick-up without increasing costs, according to the company.

The device features a clarifier designed to accommodate the smallest craft brewers, with a working capacity from 4–15 hl/h. The device provides a high production capacity for brewers without having to expand fermenting capacity, and is said to reduce losses by up to 15% by separating out beer from the tank bottoms instead of draining it away. It is claimed to facilitate increased yield and improved flavour, aroma and head retention, clarifying beer when the flavour profile is just right.

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**Control & Power Switches**

[Image of Control & Power Switches advertisement]

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www.emerson.com/au/automation

**Dwyer Instruments (Aust) Pty Ltd**

www.dwyer-inst.com.au

**Alfa Laval Pty Ltd**

www.alfalaval.com.au
Multi-function compact inverter

The Omron 3G3MX2 series multi-function compact inverter is designed to help users achieve optimum harmonised motor and machine control. The technology supports standard induction and permanent magnet motors, a fast EtherCAT fieldbus system, PID control and built-in safety.

Users are provided with full control of machine dynamics and performance. Options are also available for all of the major open network systems including EtherCAT, Modbus-RTU, CompoNet or DeviceNet. The series is suitable for low to medium torque applications. It delivers 200% starting torque near standstill (0.5 Hz) and can operate in sensorless vector control mode. This allows it to be used in applications where closed loop AC vector drives were previously used.

Category 3 safety is embedded in the series, according to ISO 13849-1, with dual safety inputs and an External Device Monitoring (EDM) output. No external contactors on the motor side are required, meaning simpler wiring for the user. All drives on the series have dual power ratings. These are heavy load and light load for fans and pumps, where the torque can be reduced once the load is in motion.

The device is a drive and position controller in one, designed for modular machines where moderate positioning accuracy is required. Speed synchronisation is also possible, with no additional programming required. Its specially developed functionality enables it to solve simple positioning tasks without an external controller. Users can select up to eight positions, plus home.

Users can also create smart solutions using PLC functionality, and use a flow chart programming tool to create programs with up to 1000 lines of code. Standard libraries for pump sequencing are also available.

Omron Electronics Pty Ltd
www.omron.com.au
Out in the cold... chain

Maintaining the cold chain plays an instrumental part in keeping produce fresh from farm to fork and is a key process in food manufacturing. Processing raw meat, for example, must be done in a low-temperature environment to prevent the development of harmful bacteria. While a very cold environment may be ideal for frozen food products, the conditions are not so desirable for human workers. Prolonged cold exposure can produce a multitude of health effects including hypothermia, chilblains and, in very extreme cases, even frostbite.

Automation can help solve this issue because picking and packing robots can operate continuously to perform repetitive tasks and reduce the need for human workers in severely low temperatures. However, to help keep workers safe, personal protection equipment (PPE) and regular breaks are a crucial requirement.

While extremely cold temperatures are dangerous, the opposite is also true. In the Glaswegian suburb of Hamilton, in Scotland, bakery company Finsbury Food produces a remarkable 180,000 cakes every week. While impressive, these results aren’t totally unique — advanced automation in batch production allows manufacturers to produce thousands of baked goods every day.

However, hundreds of thousands of baked goods require ovens along the conveyor belt to remain in continuous production. Because ovens need to reach temperatures of over 250°C to thoroughly cook products, it’s not long before things start heating up on the shop floor. Overheating can prove fatal, so plant managers must address dangerously high temperatures promptly.

Maintenance engineers could implement stronger air conditioning or better ventilation across the plant. However, if we consider the delicacy of a process such as baking, this method of temperature regulation could impact the quality of products.

Instead, one method to regulate temperatures in extreme working environments harnesses the benefits of the Internet of Things. Temperature sensors such as ABB’s TSP341-N can be non-evasively installed to monitor the temperature of a working environment and increase safety. Using a network of sensors to calculate temperature algorithms, the equipment can detect when a temperature falls above or below an environment’s average temperature margins between -40 and 400°C and alert plant managers via a human machine interface (HMI).

As the sensor is surface mounted and non-invasive, it can be fitted without the need to drill a hole and fit a temperature probe and does not require a shutdown of operations during its installation. Once fitted, workers can quickly take action to rectify the situation or remove employees from the environment until the temperatures have been regulated to a safe level.

When we think about keeping things hot or cold in the food and beverage industry, it’s understandable that we prioritise the safety and quality of the product. While working with the correct temperatures is crucial to almost every food manufacturing process, it is just as important that we ensure the safety of those working in extreme environments.

ABB Australia Pty Ltd
www.abbaustralia.com.au
Ensuring package integrity has always been a critical concern for food manufacturers as a leaking package can compromise the quality of their products. They utilise special testing systems to develop test standards to ensure that a package is leak-proof and has maximum shelf life. The tests are performed before products are dispatched and sent off to the market.

There are two commonly known leak testing systems; bubble leak testing and vacuum decay leak testing. Bubble leak testing is the simplest and cheapest leak testing system in which leak testing is performed by submerging packages underwater and checking for bubbles. On the other hand, vacuum decay leak testing is non-destructive and it relies on measurement of vacuum decay using a highly sensitive differential pressure sensor to detect leaks in the package.

There are several key points to be considered when choosing the suitable system for your process.

**Labour & cost effectiveness**

The bubble leak tester heavily relies on the operator to make judgements. Operators can easily operate this machine without training and discard the packages after testing. The test results are subjective and are not very reliable when the same operator operates the equipment for long period of time. This system is also not suitable when a large amount of testing is required.

The vacuum decay leak tester offers quantitative results and does not rely on operators to make judgements. It can finish one test in less than 15 seconds, allowing large numbers of tests to be conducted. This gives more confidence to the manufacturers about the seal integrity of their packaging passing the standards.

**Waste**

Using bubble leak testers also introduces more waste in the production process. When packages are submerged underwater and put under vacuum, it compromises the package and its content which makes it unsuitable for consumption. There is also the risk of cross-contamination between multiple products. Therefore, the tested package must be discarded after testing.

This testing system is inefficient when large numbers of testing are required. It is also not suitable for testing high-value products such as milk powder.

The vacuum decay leak tester utilises the non-destructive testing principle by measuring the vacuum decay to identify leaks in the packaging. Therefore, the packages are not compromised and can be returned to the production line if they pass the test. It is also optimised for testing large numbers of packaging and can be easily implemented in many production lines as each test can be completed in less than 20 seconds.

**Quality control**

The results obtained from the bubble leak tester are subjective and operator-reliant. The results need to be manually logged for operators to identify the test results. Vacuum decay leak testers are semi-automated systems that offer quantitative results that can be logged into the internal memory of the machine. The data can be easily exported to PC via USB or ethernet interface for quality control and traceability.

**Packaging design**

Manufacturers should also consider whether it is essential for them to identify the location of leaks in the packaging. The location of leaks may indicate faults in the packaging line which assists the engineers to troubleshoot the issue.

The bubble leak testing system is a more suitable option for this application as leak locations can be visually observed by the operators. The vacuum decay leak detector can only determine whether the package leaks, however, it is unable to tell the exact leak locations.

In most applications, it is beneficial to have both testing systems in the production line. The vacuum decay leak tester can be used for rapid leak testing and quality control. If the packaging fails the test, the compromised packages can be tested in the water bath leak testing system to identify the location of leaks.
Disinfection tunnel

As many people return to work and school, concerns about a second wave of coronavirus infections are high. A Disinfection Tunnel, designed and manufactured in Italy by EmiControls and distributed by Tecpro Australia, is designed to help mitigate the spread of COVID-19 among workers in a range of industries. The Disinfection Tunnel is a temporary outdoor awning that extends from a regular building entrance.

The tunnel automatically sprays a disinfection solution which is harmless to people, clothing and bags, but deadly to bacteria and viruses. The Disinfection Tunnel is suitable for a range of industries, such as food manufacturing and hospitality, and can be used in front of a variety of entrances such as restaurants, businesses, airport terminals, hospitals and other public buildings.

There is no sensation of wetting and no pooling of liquids around the area because the nozzles emit a fine water mist that is deposed on all surfaces, before quickly evaporating. The Disinfection Tunnel can be assembled in approximately 15 min, by connecting it to a main water supply and a power outlet. The tunnel includes a waterproof, robust tarpaulin; stainless steel supports; a line of stainless steel spray nozzles; high-pressure fogging pump; 5 L canister to hold the disinfectant; an automatic closing pump; and a switching cabinet with light sensor and time relay to help ensure the system works automatically and efficiently.

The standard dimensions of the Disinfection Tunnel are 2.5 m (H) x 1.5 m (W) x 3 m (L); however, it can also be designed to fit the architecture of a range of entrances. The tunnel may also help businesses in the food manufacturing industry adopt to stringent hygiene standards, by helping to reduce the spread of viruses and bacteria among employees.

The tunnel also includes a water filter to protect the nozzles and pump from blockages. The disinfectant is automatically added to the water by the dosing pump to quickly kill viruses, bacteria and fungi. The tunnel is claimed to be completely harmless to people and the environment.

Tecpro Australia
www.tecpro.com.au
Cheesemaking: why only some milk coagulates with rennet

Cheese production relies on the coagulation of milk proteins into a gel matrix after the addition of rennet. Milk that does not coagulate (NC) under optimal conditions affects the manufacturing process, requiring a longer processing time and lowering the cheese yield — which, in turn, has an economic impact.

In an article appearing in the *Journal of Dairy Science*, scientists from Lund University studied the protein composition of milk samples with different coagulation properties to learn more about why only some milk coagulates with rennet.

The authors of the study analysed protein composition in NC and coagulating milk samples from 616 Swedish Red cows. They reported that the relative concentrations, genetic variants and post-translational modifications of the proteins all contribute to whether rennet could induce coagulation in each sample. The NC milk had higher relative concentrations of α-lactalbumin and β-casein and lower relative concentrations of β-lactoglobulin and κ-casein when compared with coagulating milk.

“The non-coagulating characteristics of milk relate to protein composition and genetic variants of the milk proteins,” said first author Kajsa Nilsson, PhD. “Roughly 18% of Swedish Red cows produce noncoagulating milk, which is a high prevalence. Cheese-producing dairies would benefit from eliminating the NC milk from their processes, and breeding could reduce or remove this milk trait.”

These results can be used to further understand the mechanisms behind NC milk, develop breeding strategies to reduce this milk trait, and limit use of NC milk for cheese processing.
Heat and Control celebrates its 70th anniversary

Founded in 1950, equipment manufacturer and food processing industry supplier Heat and Control will celebrate its 70th anniversary on 27 June 2020. It plans to mark the platinum occasion with a 12-month-long celebration.

With a father/son duo working side by side for decades, the family company continues to explore opportunities to uplift employees, satisfy customers and build meaningful partnerships.

Heat and Control started in industrial process heating applications, such as heat treatment furnaces and combustion systems, and soon became food focused as the industry experienced growth in the 1960s. By the 1970s, the company was able to supply complete food processing systems. Through the 1980s, the company partnered with Ishida Japan, a leader in weighing and packaging technologies, and acquired several factories to help serve growing customer demand.

The 1990s brought product line expansions and additional offices to service the food market. New technology was also introduced with FastBack, bringing horizontal motion conveying to the food processing industry, and providing better product handling between processing and packaging equipment. With the acquisition of Masstematic, a frying technology company with a history in coating, frying and auxiliary systems, Heat and Control continued to strengthen its offering to the food industry.

In the 2000s, the company opened several factories and offices around the globe, increased focus on the development of improved controls and information systems, and partnered with CEIA, a leading metal detection manufacturer.

Spray Dynamics joined the Heat and Control brand family in 2011, increasing the company’s seasoning and coating capability and industry access to expertise in in-kitchen seasoning innovation.

Each of these partnerships has worked to continually build an end-to-end line solution provider that helps food companies take better control of their production and make better quality products.

“Heat and Control’s past, with my father paving the way, prepared an outlook for an exciting future,” said Tony Caridis, President of Heat and Control. “We have incredible people in our organisation, customers believe in our abilities and there is respectful collaboration with our global partners.”

With seven decades of modernising equipment solutions, the company continues to advance the food, pharmaceutical and multiple additional industries. It now has almost 1600 employees worldwide in more than 30 offices.

“As the President, I would like to say thank you. Here’s to celebrating the next chapter of innovation together!” Caridis concluded.

Vacuum pump series

With the claw pumps of the DZS 100 - 400 VSD+ series, Atlas Copco has launched an air-cooled, oil-free claw pump for particularly harsh applications.

The robust pump is designed to increase productivity in conveying, clamping, drying processes or environmental applications thanks to its low energy consumption and space requirement as well as its handling of pollutants. Using the newly developed VSD+ App, users can now set and access the relevant parameters of the vacuum pump quickly and in real time via iOS or Android devices.

Atlas Copco has equipped the three models of the DZS 100, 200 and 400 VSD+ series with corrosion-resistant materials in order to be well equipped for harsh application environments. For this purpose, they also have a durable internal coating.

In addition, the design principle requires uncomplicated maintenance and this allows quick access to the inside of the pump by service technicians. It also simplifies, for example, the removal of product residues. No new synchronisation is necessary during the subsequent assembly. This results in short downtimes and low service costs for the operator.

A VSD+ inverter drive is integrated in the motors to control the pumps. This allows the optimum performance points of the claw pump to be specifically controlled and power consumption to be reduced. This function ensures that energy is saved and the CO₂ footprint is reduced. Sustainability is also ensured in the immediate process environment: the completely oil-free DZS VSD+ pumps are certified to ISO 8573-1 Class 0 and are claimed to be completely harmless to the quality of the ambient air during operation. This eliminates the risk of oil-induced contamination and damage to sensitive applications and products in the environment.

With the newly developed VSD+ App, users have quick access to numerous parameters. Via the iOS and Android devices, values such as inlet pressure, rotor speed, running hours and service intervals can be monitored and controlled at a glance in real time. The VSD+ App also makes it easy to commission the DZS VSD+ vacuum pump — via the three parameters target pressure, start/stop delay and stop level. When the pump is started, the VSD+ App automatically connects via Bluetooth. Once the desired values have been entered, the innovative DZS 100 - 400 VSD+ series starts operation immediately.

The advantages of the DZS 100 - 400 VSD+ series include: longer life bearings and seals; quick and straightforward access; easy cleaning; reduced maintenance time; good performance and vacuum level; lower power consumption; minimal machine life cycle costs; and low noise level.

Atlas Copco Compressors Australia
www.atlascopco.com.au
Ensuring microbial safety of frozen foods with pulsed light

Bonduelle North America, a processor of frozen and canned vegetables in Canada, is considering how best to apply pulsed light technology during a final stage of processing, to ensure its frozen vegetables are Listeria-free. Listeria can cause foodborne illnesses and is a priority pathogen in the processed frozen vegetable sector. The project is part of the Canadian Food Innovators (CFI-ICA) research cluster, ‘Using science and innovation to strengthen Canada’s value-added food industry’.

Bonduelle is working with food technology centre Cintech Agroalimentaire in St Hyacinthe to determine how well the process would work on Listeria and how to best optimise and scale the technology for a food processing environment. Researchers are experimenting with different exposure times and energy levels using various application processes to find the optimal set-up for peas, corn, green beans and sliced carrots.

Louis Falardeau, R&D Director with Bonduelle, emphasised the importance of developing new tools to ensure food safety. “Our goal is an additional hurdle for any potential pathogens before going to market. Even though the potential for contamination is already very limited at this point, this is an extra tool in addition to those we are already using,” Falardeau said. Alongside food safety, the technology could improve market access for frozen vegetables by reducing the need for costly, time-consuming testing. The technology could also reduce food waste by decreasing the amount of rejected product, which ends up in landfills.

“This project is an excellent example of the food processing innovation we can foster in Canada when we harness the strength of our food technology centres and bring them into collaboration with industry partners,” said Joe Lake, CFI-ICA Chair and Director of Innovation & Research at McCain Foods Limited.

The research is part of funding previously announced by the Honourable Marie-Claude Bibeau, Minister of Agriculture and Agri-Food, of up to $4.6 million to the Food and Beverage Cluster through the Canadian Agricultural Partnership’s AgriScience Program.

“Canadians and consumers around the world trust Canada’s high-quality agricultural products. This initiative will help ensure Canadian processors are at the forefront of innovation, while keeping their industry competitive and strong,” Minister Bibeau said.
Desiccant dryers
Kaeser Compressors has launched its latest generation of its smaller heatless regenerated desiccant dryers for flow rates from 0.2 to 1.13 m³/min. Compact and efficient, the enhanced models are suitable for compressed air supply systems serving sensitive industrial processes such as those found in the food, beverage, medical and pharmaceutical industries, to name only a few.

The DC series of desiccant dryers from Kaeser Compressors can lower the pressure dewpoint of the compressed air to -70°C. They deliver frost protection for control valves and lines while producing dry compressed air for sensitive processes at minimal cost.

The DC 2.0 to 11.3 models can operate in, for example, 10 min cycles to achieve pressure dewpoints down to -40°C. During this process, the dryer switches between the two desiccant chambers only once every 5 min. This reduces the number of switching sequences between the chambers and resulting material wear on the valves and desiccant.

Moreover, long cycle times additionally reduce the amount of compressed air required to restore pressure following the desiccant regeneration phase. As an example, whereas 7.6% of the compressed air must be diverted for a 2 min cycle, this proportion falls to just 1.3% with the 10 min cycle of the small DC units. This reduction makes them efficient, saves energy and extends desiccant service life.

Other features include: on/off control; Eco Control Smart Controller, Modbus TCP interface for quick and easy network set-up; silencer for quiet operation; space-saving, easy to install, protective all-round enclosure makes the units suitable for decentralised compressed air treatment; and also suitable for wall installation.

Kaeser Compressors Australia
au.kaeser.com
GrainCorp Oilseeds is a regional Australia canola seed crusher and oil refiner with more than 20 years of commitment to the local oilseed industry, producing canola oil and a range of oils and meals for domestic and international markets.

**Problem experienced**
The main cooker bearings were experiencing issues due to overheating. Part of the problem was connected to cooker alignment, which led to the overheating and subsequent failure of these bearings. ABB’s Channel Partner, A1 Electric Motors, offered a monitoring option to GrainCorp Oilseeds to assist with pre-empting a potential alignment issue with the cooker.

**The solution**
A1 Electric Motors worked with ABB to develop a custom solution using ABB Ability Smart Sensor technology. The ABB Ability Smart Sensor converts traditional motors, pumps and mounted bearings into smart, wirelessly connected devices. It measures key parameters from the surface of the equipment which can be used to gain meaningful information on the condition and performance of the equipment, enabling users to identify inefficiencies within their system and to reduce risks related to operation and maintenance. Maintenance can now be planned according to actual needs rather than based on generic schedules.

The system designed for GrainCorp featured bearing sensors, motor sensors and a gateway. This gave GrainCorp the ability to actively monitor its equipment bearings and assess their condition and help prevent failures.

Empowering GrainCorp to proactively monitor their primary cooker bearings and motors along with the support and service of A1 Electric Motors has ultimately supplied them with process efficiency and eliminated the potential of system failure. The ABB Ability Smart Sensor solution has helped to provide advanced risk mitigation for the company.

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Soft robots have potential in the food industry but have been limited due to their lack of good sensing. Now researchers from MIT’s Computer Science and Artificial Intelligence Laboratory (CSAIL) have developed new tools to let a soft robot feel what it is touching (tactile sensing) and sense the positions of its fingers (proprioception).

“Soft robot hands have sensorised skins that allow them to pick up a range of objects, from delicate, such as potato chips, to heavy, such as milk bottles,” said CSAIL Director Daniela Rus, the Andrew and Erna Viterbi Professor of Electrical Engineering and Computer Science and the deputy dean of research for the MIT Stephen A. Schwarzman College of Computing.

The researchers reported in two papers: One paper builds off last year’s research from MIT and Harvard University, where a team developed a soft and strong robotic gripper in the form of a cone-shaped origami structure. It collapses in on objects much like a Venus flytrap, to pick up items that are as much as 100 times its weight.

To get that newfound versatility and adaptability even closer to that of a human hand, the team came up with a sensible addition: tactile sensors, made from latex ‘bladders’ (balloons) connected to pressure transducers. The new sensors let the gripper not only pick up objects as delicate as potato chips, but it also classifies them — letting the robot better understand what it’s picking up, while also exhibiting that light touch.

When classifying objects, the sensors correctly identified 10 objects with over 90% accuracy, even when an object slipped out of grip.

“Unlike many other soft tactile sensors, ours can be rapidly fabricated, retrofitted into grippers, and show sensitivity and reliability,” said MIT postdoc Josie Hughes, the lead author on a new paper about the sensors. “We hope they provide a new method of soft sensing that can be applied to a wide range of different applications in manufacturing settings, like packing and lifting.”

In a second paper, a group of researchers created a soft robotic finger called GelFlex that uses embedded cameras and deep learning to enable high-resolution tactile sensing and “proprioception” (awareness of positions and movements of the body).

The gripper, which looks much like a two-finger cup gripper you might see at a vending machine, uses a tendon-driven mechanism to actuate the fingers. When tested on metal objects of various shapes, the system had over 96% recognition accuracy.

“Our soft finger can provide high accuracy on proprioception and accurately predict grasped objects, and also withstand considerable impact without harming the interacted environment and itself,” said Yu She, lead author on the GelFlex paper. “By constraining soft fingers with a flexible exoskeleton, and performing high-resolution sensing with embedded cameras, we open up a large range of capabilities for soft manipulators.”
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CASE STUDY

Enmin’s Australian-made equipment provides customised solution

For more than 40 years, Victorian-based Enmin has been building custom vibratory and material handling solutions for a myriad of applications and environments.

Enmin General Manager Anthony Gallaher notes several benefits with Enmin’s locally made equipment, including the ability to offer individual design and customisation, expert local advice, consistency of supply and outstanding backup and support. The company also supports other local manufacturers, purchasing 304 stainless steel, various steel and plastic machined parts, castings, coils and electrical components as well as outsourcing its laser cutting, all domestically.

Customisation is an important part of the Enmin business. In a recent example, a hopper feeder was required where the depositing system dictated a height that would be unergonomic for the production line staff to easily and safely access the storage hopper.

“Using our design expertise and state-of-the-art software, we designed a mobile unit with retractable operator steps. When not required, these steps can be folded out of the way quickly and with very little effort thanks to pressurised struts on each side,” Gallaher said.

“Another benefit of being a local manufacturer is being able to see first-hand a customer’s existing production line set-up to ensure our equipment will integrate seamlessly with other components already in place. We can ensure that mechanical components fit with minimal or no modifications and electrical interfaces are all talking to each other.”

“There are many pieces of non-branded equipment brought in from overseas and these often need replacement parts; this is where our knowledge and expertise also comes into play to ensure that the right part is specified,” Gallaher continued.

“And, of course, being a local manufacturer means we are only a quick phone call away to immediately respond to any customer query or provide service and parts support throughout Australia,” he added.

Enmin also invests in R&D to provide Australian manufacturers with the latest developments in materials handling solutions and improve production efficiencies.

An example of this is Enmin’s design and development of a range of modular components. “The key benefit of modular components is that it eliminates equipment redundancy and expands with the customer’s business. It can be added to, extended and modified in the years ahead as a company’s production needs evolve,” Gallaher said.

Enmin’s range of product handling and vibratory equipment includes the Mi-CON modular conveyor — a hygienically designed full washdown system with multiple standardised components — and a range of hopper feeders and screeners, spiral conveyors, conditioning conveyors and more.

“All our products are designed and constructed first and foremost to meet the rigorous requirements of the food and pharmaceutical industries such as maximum hygiene, ease of cleaning and the reliability essential to meet the demands of continuous 24/7 operation,” Gallaher said.

Enmin also has a range of industrial vibrators to suit any industry that handles bulk material.

Enmin Pty Ltd
www.enmin.com.au

Stainless steel plumbing

Food manufacturing businesses often rely on plumbing to maintain their essential daily operations. Copper piping has been used for decades, but it is an expensive plumbing option due to the necessary involvement of qualified welders and time-consuming installation.

Surepress press-fit systems can offer the same long-term usage and maintenance as copper. In addition to the high-quality components in 304 or 316L stainless steel, the completed systems are aesthetically pleasing and also claimed to be stronger and highly resistant to ageing, heat and chemical additives.

The systems are fast to install and do not require a qualified welder at any point in the process, resulting in less inconvenience to businesses. This also means future changes or maintenance to the system can be completed easily, with minimal disruptions to business operations experienced.

Allmach PFS Pty Ltd
www.allmach.com.au

September/October 2020 www.foodprocessing.com.au
For over 30 years, optek has focused on measuring process liquids through its interaction with light in facilities all over the world. Although global, optek remains a family-owned company with a team of more than 100 qualified, customer-driven professionals. With the expertise of more than 30,000 installations worldwide, the company’s value to the customer resides in providing a superior product that pays back. High-quality materials withstand the toughest process conditions including aggressive media, high temperature, and high-pressure applications.

Cleanability is ensured using high-quality wetted materials, superior design, as well as sapphire optical windows. As a global partner to various industries, optek offers advanced technologies including superior signal amplification, inline calibration support, PROFIBUS PA, FOUNDATION Fieldbus and multilingual user interfaces for easy onsite operations. The company’s support provides long-term satisfaction with programs such as “Speed-Parts” and “SwapRepair” to provide sustainable operations and minimised downtime at a low cost of ownership.

**Colour measurements**

Process colour measurements of liquids are critical in maintaining precise process control and meeting product quality specifications. Colour changes indicate other process variables such as overheating, dilution ratios, dissolved impurities and finished product appearance. Monitoring colour inline using optek photometers enables precise, real-time control of colour dosing, colour removal or colour avoidance.

**Dual wavelengths**

Selected combinations of optical filters make it possible to focus on specific wavelengths ensuring suitable adaptation to the application. The AF26 is equipped with a beam splitter making it possible to measure two wavelengths simultaneously. The second wavelength can be used to compensate for varying background turbidity. Subtracting the absorbance signal of the reference channel from the primary, visible channel signal gives a pure colour measurement. Using the C4000 converter, the measured value is easily correlated to any required unit, such as APHA/Hazen, Saybolt, ASTM, ASBC, EBC, ICUMSA or others. The converter displays the measurement locally and transmits the signal to a PLC or DCS using analogue outputs or PROFIBUS PA communication or FOUNDATION Fieldbus.

**Concentration measurement**

The measurement is represented in concentration units (CU) at a given wavelength and relates to the concentration of constituents in question that interact with light.

**Process optimisation**

The detection of impurities, reduction of product losses and the real-time assurance of product quality can be obtained by the use of inline photometers. In addition, inline photometers greatly reduce laboratory and production costs, eliminate human error and prevent environmental damage.

**Clean-in-place (CIP)**

Many manufacturing facilities require CIP systems to clean tanks, pumps, valves, filters, heat exchange units as well as the process piping. The use of CIP increases plant efficiency, improves safety and ensures product quality. However, achieving these benefits requires monitoring and control of the CIP process to optimise heat, cleaning agents and water consumption.

**CIP optimisation**

Precise process interface detection with a single channel NIR absorption based photometer (optek AF16-N or AS16-N) is typically installed at the CIP return points where it is beneficial to measure the exact interface on rinse water. Inline photometers can also be used to monitor the sanitiser concentration to control the CIP process, for validation routines, and in some cases, to monitor the residual after cleaning.

**Sanitiser concentration**

Chemical concentration has always been a difficult measurement using traditional conductivity sensors. Changes in pH, temperature, or other unexpected compounds can all affect conductivity devises. To compensate for these issues, plant operators often overdose chemicals to ensure adequate sterilisation, then extend line flushes to ensure it is removed.

**Sanitiser optimisation**

By installing an optek UV/VIS or NIR absorption sensor on the feed line, exact concentrations are monitored, optimising performance, while reducing chemical usage. These sensors are also compensated to eliminate any influence from turbidity or the presence of other compounds. In addition, with immediate response times, sanitiser and water usage is greatly reduced.
Ice cream filling and rotary moulding line

The Tetra Pak ice cream filling line is designed for producing up to 45,000 ice cream cone and cup products per hour. The machine is versatile and able to produce four different varieties on up to 12 lanes simultaneously. It can be used to make a range of ice cream cone and cup products — including flat- and ball-top cones, cups and tubs in multiple shapes and sizes, and logs and cakes in different formats.

The product’s numerous filling architectures include side-by-side filling, tulips, flames, chocolate curls, windmill-style filling, nuts, sauces, liquid chocolate, chocolate discs and pencils. When run at the highest capacity, the machine’s automated changeovers support fast run switching, with automated supply systems for cups and lids designed for maximum output.

The machine’s Big Drum Choice Filler enables cone and cup filling. Flexible in switching between multiple products, it allows users to configure capacity and product range to suit need. Its compact modular design can save floor space and facilitate upscaling. Smooth product repeatability allows all products to look homogenous. The machine also features low waste rates of 1.5% for cones and 2% for cup lines. Its ergonomic design provides food safety and prioritises operator health and safety.

Tetra Pak’s medium-capacity rotary moulding line for ice cream sticks allows manufacturers to produce a variety of stick ice cream products. Built around the Tetra Pak Rotary Moulder, the line is capable of performing everything from moulding to filling. A range of dry dosing options allows users to improve production.

Its rotary moulding technology allows users to expand into more complex value-added products, while providing the necessary creaminess as extrusion. The easily upscalable line allows users to start with a limited investment and expand over time. Multiple automated features and advanced filling options, including bottom-up filling with built-in CIP, are designed to extend plant run time for maximum yield and output.

Tetra Pak Marketing Pty Ltd
www.tetrapak.com/au
Room pressure monitor
The series RPME FlexiSENSE Room Pressure Monitor is designed for low differential pressure applications that require stringent pressure monitoring and alarming.

The room pressure monitor can be configured to monitor positive or negative pressure in protected environments and clean manufacturing areas. It is a complete system with a fixed segment LCD which enables access to pressure, security, calibration and alarm set-up. It also has a brushed stainless steel bezel that allows for easy cleaning.

The device has built-in status indication LEDs that will appear green when within the user-defined pressure set range and will appear orange when outside of the pressure set range. Two SPDT independent control relays with adjustable deadbands are also provided along with a 4–20 mA process output.

Dwyer Instruments (Aust) Pty Ltd
www.dwyer-inst.com.au

Dew-point tester
The Michell CDP301 portable HCDP tester from Michell Instruments uses the chilled-mirror principle for hydrocarbon and water dew-point measurements, and is designed to follow the requirements as described in ASTM D1142. Based on the visual manual method of observing the formation of condensate, the CDP301 uses a high-definition visual image to assist users and allows image capture and logging of measurements for later review.

The product uses a cooled/chilled mirror dew-point measurement principle, with an automatic mirror cooling rate control according to ISO 6327 and ASTM D1142 test methods for natural-gas dew-point measurements. The product features a colour LC display, with visual identification of water and hydrocarbon dew-point. It is self-contained and powered by a rechargeable battery. The dew-point tester is also Exd certified IECEx ATEX Zone 1 IIB+H2 T3, with better than ±0.5°C accuracy of mirror surface measurements. The product has a 100 barg operating pressure rating and greater than 60°C measurement depression range (up to 100 barg pressure).

AMS Instrumentation & Calibration Pty Ltd
www.ams-ic.com.au

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Take product safety and quality assurance to the next level with Ishida X-ray.

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www.heatandcontrol.com | info@heatandcontrol.com
CASE STUDY

Meat processing: do you know which cut is more profitable?

Many red meat processors have prioritised investment in new equipment, automation and robotics to reduce direct labour costs — in preference to sophisticated costing systems. But Peter Daniliuc, Managing Director of Profit Channels Management, explains how costing modules can provide the accuracy and granularity required to drive genuine product mix optimisation.

Using a lamb processing example, he said: “The relative range and complexity of cuts can generate over 10,000,000 individual carcase cut combinations. And with carcase profit contribution so dependent on yields and processing times, the accuracy of costing data by SKU can often be the difference between profit and loss, when fixed overheads are taken into account.”

“Consider the high-level process flow of a typical lamb processing plant and focus on one particular area, the boning room (processing and packaging).

“For many manufacturers, variable costs — direct labour, utilities, consumables, indirect labour, packaging, etc — are allocated to a carcase, primal or linear cut level.

“Factors that are often overlooked or are grouped as general allocations include:
• individual cut complexity
• variations in yield between cuts within the same linear group
• impact on boning room throughput volumes
• packaging complexity and risk of damage/leakage
• order quantities and impact on labour planning.

“Variations in excess of $1.00/kg for essentially the same product, in a single work centre, can lead to significant opportunities to optimise carcase cut combinations.

Daniliuc said this costing variation can lead to significant opportunities to optimise carcase cut combinations, which can realise savings without the need to invest in new equipment or personnel.

Case study: Poultry processor uses costing system

In 2009, a large Australian-based poultry processor installed the ImpactECS system by 3C Software to solve an issue with insufficient visibility into product costs associated with assembly and disassembly processes.

The processor was experiencing limitations with its home-grown system and spreadsheets. It was unable to forecast fully costed optimal production using its cost-based data.

ImpactECS is a dynamic cost and profitability system which provides an environment for users to rapidly implement a costing system. The system was installed for the poultry processor to deliver product costings, scenario analysis and detailed profitability analysis.

The system can calculate costs for raw material yields for both disassembly and reassembly processes based on cut, range and location at the plant. It can also:
• determine standard versus actual cost variances at BOM level
• calculate complex meat valuation based on market price, sales price and actual cost
• allocate labour on a variety of methods, departments and rates (per bird, kilogram, and tray)
• develop costing analytics sandbox for product development to calculate costs from concept to finished product.

Scenario analysis can be performed to test the effects of changes to material, labour, overhead and other KPI changes on profit performance. This can help to determine optimised production outlook based on forecasted cost data and enables granular level operational modelling to predict outcomes, compare or simulate revenues and costs at any stage across the value chain.

The results

The system provided a fully costed production plan for the poultry processor, which was designed to optimise material value, labour efficiencies and process flows. The results included:
• optimised production efficiency with the primary poultry processing time at every plant reduced to just 2 hours
• detailed activity cost data provides P&L visibility for individual products and locations
• scenario analysis capabilities provide ability to rapidly predict how market changes will impact performance.

The ImpactECS system by 3C Software is distributed in Australia and New Zealand by BMA Group.

BMA Group
bma.com.au
Foreign matter capturing system

FMCG Industry Solutions has released the ProfilGate foreign matter capturing system, which is designed to prevent contamination on forklift tyres, trolley wheels and shoes from being introduced into a manufacturing environment. It works by capturing metal, glass, sand, dirt and swarf fragments from tyres and shoes every time they travel across the system.

Positioned for use at all entrances with high traffic, such as hygiene entrance, warehouse entrance, production areas, processing areas, maintenance departments and other high-risk areas, the system is designed to reduce the risk of product cross-contamination and can prevent potential recalls.

Using the latest German cleaning technology, the patented brush system is activated by the weight of a forklift/shoes as it travels across the metal grid. It actively removes contaminants (up to 8 mm in diameter) from the tyres and soles of shoes, which are then captured inside the stainless steel tray.

Designed with no obstructions, no trip hazard, no power requirement and no maintenance, the system can clean 24/7 without the user knowing it. While the whole industry is focused on detection, this system is designed to focus on prevention.

FMCG Industry Solutions Pty Ltd
www.fmcgis.com.au

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Industrial Ultrasonics NZ is a leader in ultrasonic cleaning thanks to a 50 years trajectory experience.

We are specialists in equipment from 100 to 15,000 litres, with a custom design and construction for each client and a clear specialization in ultrasonic equipment with low frequency (28khz) of greater cleaning power.

FOR MORE INFORMATION, PLEASE CONTACT US
Bega says cheese to IoT sensors for dairy supply chain

Software AG has announced that it will provide its Cumulocity IoT solution to Bega Cheese to launch a new IoT service linking the company’s farmer suppliers, milk transport and storage, and processing facilities. Software AG will provide IoT solutions to Bega Cheese to provide real-time data on milk production at farmer suppliers, including volumes, temperature, quality composition and transport conditions. The IoT solutions will help Bega gain efficiencies in pickup and delivery frequency to reduce costs and improve traceability.

Adel Salman, GM Supply Chain at Bega Cheese, stated that the company knew that IoT could be an excellent solution, especially with the use of real-time data for inbound and outbound activities in the company’s supply chain.

“What we didn’t have was experience in setting up IoT projects, so we started looking around for a partner that could provide us with IoT expertise, resources, industry contacts and help with government backing,” Salman said.

Salman described Swinburne University of Technology, with its Internet of Things Lab and Industry 4.0 initiatives, and partnership with Software AG, as the perfect collaborator for Bega.

“Swinburne University listened to what we needed to achieve and together with Software AG developed an IoT strategy with a set of solutions that met our needs. The university has also been instrumental in helping us to successfully apply for a research grant from the federal government’s Cooperative Research Centres Projects (CRC-P),” Salman said.

The scope of the project will include a novel low-cost milk quality sensor enabled for IoT, an IoT ‘live’ Supply Chain Monitoring system for continuous real-time monitoring of milk supply quantity and quality, farm conditions affecting milk production, and milk pickup events across the supply chain.

Tony Drewitt, Head of IoT ANZ, Software AG, said the company is excited to have this opportunity to work with Bega Cheese. “With Cumulocity, Bega Cheese will have real-time data and insights which will allow it to enhance its supply chain productivity and competitiveness with just-in-time milk pickup and processing requirements on a large scale,” Drewitt said.

Software AG will also provide a Dynamic Pickup Scheduling and Monitoring tool that utilises sensor data reporting milk supply change events to automatically maintain pickup schedules and pickup events. The project also includes a predictive machine learning-based highly accurate forecasting tool for milk quality and quantity that exploits live and long-term historical data from sensors across the supply chain, and a Farmer App that provides milk forecasting together with milk quality and pickup alerts.

Swinburne University will also develop and build unique new IoT sensors specifically for Bega Cheese.

“We’re excited to see the benefits that IoT can bring to our company. By working with Swinburne University and Software AG, we hope to be able to increase our growth across higher-value premium products, thus enhancing the competitiveness for both Bega and our suppliers,” Salman said.

Bega also aims to increase its supply chain sustainability by reducing milk wastage and fuel consumption of its milk transport partners. The project is expected to run for 12 to 18 months.
Disinfection cannon

The V12So Disinfection Cannon from Tecpro Australia is designed to disinfect large areas, such as warehouses and factories. The disinfection cannon’s nozzles generate a fine mist of disinfectant solution which is distributed by its turbine. The mist settles over all surfaces and into hidden corners. As the mist is so fine, there is no wetting or pooling. As a result, water consumption is low at 4 L/m.

The disinfection cannon is quiet, with an operating noise of 60 dB(A). The product is modular and features a range of optional extras such as a dosing pump to mix the disinfectant, a generator, a water tank and a trailer. It can also be mounted onto the back of a small flatbed truck.

When using the disinfection cannon indoors, first clear the area of unauthorised personnel while conducting the disinfection procedure. Next, switch off the fire alarm system and ensure the operator wears personal protective equipment such as a protective suit, glasses, gloves and a FFP2-3 mask. The operator must remain behind the disinfection cannon when it is in use.

Next, spray the disinfectant mist in one section at a time for approximately 10–20 min using the product’s automatic rotation. Start the process at the back of the area and work forward. Do not spray directly onto shelves or surfaces; instead, spray the mist a few metres above the surfaces to be cleaned, ensuring that packaged food is safely covered. Allow 1 h for the disinfection mist to settle and do its work, then ventilate the area well.

Tecpro Australia

www.tecpro.com.au

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Tray sealing solutions

The Proseal range of tray sealing solutions includes the GTR semi-automatic rotary machine and the fully automatic, high-throughput GT4s tray sealer.

The compact GTR rotary machine is designed for companies with smaller production runs. Unlike traditional manual machines where the operator has to wait for each tray to be sealed, the rotary operation of the GTR loads a new tray while the previous one is being sealed, thus improving speeds.

The GT4 tray sealer combines a compact design with fast speeds and tool changes, enabling users to react quickly to meet customer demand. The machine can handle atmospheric, gas flushing and hermetic shrink-sealed trays at speeds of up to 140 packs/min with a seven-impression tool. The tray sealer can be used in a variety of applications, including fresh fruit, meat, poultry and ready meals.

Features include: ProMotion technology, improving speeds by up to 30% using motion and buffering technology, enabling trays to feed continuously into the sealer; and Eseal, which is designed to provide seal reliability with an increased seal force of 200% with a 92% reduction in energy usage.

Suitable for high-care hygienic food environments, the tray sealer is made with food industry-approved hygienic construction providing easy cleaning with full washdown protection.

Proseal Australia
www.prosealaustralia.com

Eco-friendly glass bottle filler

The KHS Innofill Glass DRS filler is efficient, environmentally friendly and gentle to products. The DRS ECO variant has reduced its energy consumption by up to 20% and reduced CO₂ emissions by as much as 50%.

The glass bottle filler provides filling technology which meets the growing market requirements for flexible and efficient production processes. The system bottles beer, mixed beer beverages, cider and soft drinks. It can fill containers holding between 0.1 and 1.5 litres, processing up to 80,000 0.33 L bottles/h.

The glass filler also features a number of digitalisation and automation technologies, such as the DIAS diagnostic assistance system, which monitors the entire filling process. Pressure sensors are installed in every single filling valve, which continuously detect any deviations from target values or bottle breakages. The evacuation and CO₂ purging processes are monitored for the lowest possible oxygen pickup. DIAS is also capable of recognising broken bottles in all filling phases and triggers the bottle burst routine automatically.

The SOFTSTOP bottle flowgate also provides product protection, as it interrupts the flow of bottles gently, even at maximum speed, for a homogenous filling process and constant foaming quality, while keeping oxygen at a low level.

A camera-controlled, high-pressure injection control system called OPTICAM enables monitoring and automatic regulation of the head of foam, reducing product loss by up to 50%. The fill level probe on the Innofill Glass DRS measures the fill level and monitors the CIP process. The bottle filler can also be fitted with automatic CIP taps that shorten changeover times and lower the amount of cleaning media used.

Suitable for high-care hygienic food environments, the tray sealer is made with food industry-approved hygienic construction providing easy cleaning with full washdown protection.

KHS Pacific Pty Ltd
www.khs.com
Biodegradable rubbish bags

Bio-Gone Plastics has developed a responsible alternative to plastic rubbish bags that can biodegrade away in a fraction of the time compared to plastic rubbish bags. When disposed to a landfill, the natural microorganisms there will digest the bags away to natural base constituents.

There are two different material types available to suit different expectations. The landfill-biodegradable bags are low cost and look and feel like conventional rubbish bags. They come in a range of sizes from the small benchtop 10 L up to the wheelie bin size of 240 L. The home-compostable bags are made from plant material. Though they cost more, they are faster to biodegrade away when disposed to a landfill or compost bin. These come with the AS5810 certification for Home Compostable.

Bio-Gone Plastics
www.biogone.com.au
The past few months have continued to see much disruption to the way business is being conducted. AWRE is committed to providing an essential platform for the waste, recycling and resource recovery sector to grow, learn and do business safely. Therefore, it is excited to announce that AWRE 2020 will be reimagined and launched as an interactive online event, making it accessible to everyone, irrespective of geography or social distancing rules. The online event will run as originally planned on 25–26 November 2020.

The AWRE 2020 reimagined online event has been established to offer the flexibility to connect while staying apart. Learn and hear from the industry’s best as we navigate a changing world. AWRE will provide a platform to discuss, reflect and explore the strong future of the industry.

The online event will provide the waste and recycling industry with a new way to interact and communicate through thought leadership webinars, keynote sessions, breakouts and product launches. Creating more than just an online event — it will be an online interactive experience providing attendees with an engaging experience that is easy to navigate.

“We are proud to continue our Major Partnership of AWRE, as we have done over the 10-year history of this important event,” said Kathy Giunta, Environment Protection Authority Director Circular Economy Programs. “In these changing times it is wise to go online and continue to provide the waste and recycling community with an accessible event.”

What: Australasian Waste & Recycling Expo (AWRE)
When: 25-26 November 2020
Where: Online
To register, visit: https://awre.com.au.
Memjet colour label printer now in compact format with the VIP Color VP600
The VP600 features

- Fast print speed up to 8 inches per second. That is to say, you get 1,600 4" x 3" labels within 10 minutes.
- Print one to 10,000 labels anytime on-demand. In other words, VP600 is suitable for short run label printing.
- High resolution up to 1,600 x 1,600 dpi. This is great for crisp text, fine barcode. Moreover, you get brilliant colors for prime labels!
- Compact size. This makes VP600 the perfect desktop small color label printer for tight spaces.
- Individual 200 ml ink tanks to reduce replacement cost. You get more labels between ink change and fewer user intervention than many entry level printers.

NEW FROM LABEL POWER – THE VIPCOLOR VP600 COMPACT MEMJET LABEL AND TAG PRINTER

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Processing steps together with many other factors can affect a chocolate’s flavour and contribute to its unique chemical make-up. Chocolate ingredients are sourced from different regions of the world and this can affect the fermentation process, thereby influencing the flavour compounds in chocolate.

Traceability of cocoa is becoming more important for quality control in the chocolate industry, so that consumers can know they are purchasing products that adhere to fair-trade regulations, organic farming practices, etc. In order for consumers to be certain that the chocolate bar they have purchased is really from the exotic locale stated on the wrapper, researchers are now looking at a chemical ‘fingerprint’ method.

The method being developed can determine where a particular chocolate was produced — and someday, which farm its beans came from. The researchers are presenting their results through the American Chemical Society (ACS) SciMeetings online platform.

According to the project’s principal investigator, Shannon Stitzel, PhD, the idea originated from a lab experiment she ran during one of her courses. “The method we used to analyse chocolate bars from a grocery store worked well in the class, and the exercise piqued the students’ curiosity. So, I started reaching out for more interesting samples and tweaking the technique,” Stitzel said.

Early on, Stitzel’s experiments at Towson University involved a well-known method for geographic determination. She used elemental analysis, which has been used to identify the source of a myriad of unknown materials. However, Stitzel wanted to go further and analyse the organic compounds in cocoa liquor to see if any of them remained after various processing steps. If so, they could be used as markers for more precise authentication testing.

Through a friend in the industry, Stitzel acquired single-source samples of cocoa liquor from all over the world. Her undergraduate student, Gabrielle Lembo, used liquid chromatography (LC) to separate the cocoa liquor compounds from various samples and mass spectrometry (MS) to identify their chemical signatures. Lembo’s results showed that LC-MS is a robust analysis technique. Compounds, such as caffeine, theobromine and catechins, are detected in different patterns that make up a signature fingerprint. This fingerprint indicates provenance and cannot easily be finagled by nefarious producers.

Stitzel said that eventually their method could be used to help map out the expected flavour profiles of a chocolate, given its chemical signature. And she says it would be interesting to first determine the fingerprint of a cocoa bean, then gather fingerprints with each consecutive processing step to see how they change. For now, her students are expanding the application of the analysis method by looking at the chemical signatures of various forms of fair-trade and organic coffee.
Machine health monitor

Emerson’s machine health monitor is designed to help increase palletisers’ overall equipment effectiveness.

It includes a PACSystems CPL410 outcome optimising controller and can track critical motion and pneumatic system parameters such as air flow, pressure, vacuum, mechanical actuation speeds and motor vibration in real time.

It is designed to be customisable and scalable to adapt to any primary product palletising system or complete packaging line.

System analytics and health information can be accessed via the local display or remotely via a tablet or smartphone.

By accessing this data, users can plan for potential issues and perform predictive, rather than reactive maintenance to increase the machine’s uptime.

Emerson Automation Solutions
www.emerson.com/au/automation

FoodTrack nutrient labelling database now online

Australian healthcare and food industries will now have direct access to FoodTrack — a food, labelling and nutrient information database — to develop customised insights and identify market trends.

Jointly developed in 2014 by CSIRO and the Heart Foundation, FoodTrack data will be available via online analytics platform Nutritics. The database is updated annually and contains nutrition data for approximately 45,000 food and beverage products, capturing at least 90% of all fresh and packaged foods sold across four major Australian supermarket chains — Aldi, Coles, IGA and Woolworths.

Food producers can now use the online platform to conduct custom-analytics using FoodTrack data to identify new opportunities or gaps in the market, as well as track changes in the nutritional composition of the food supply. The platform is also designed to help guide public health nutrition strategies.

FoodTrack is an Australian branded food database available via the cloud-based analytics platform from Nutritics. The platform can be accessed via an online subscription-based service.

CSIRO
https://www.csiro.au/

Zippers for flexible packaging

With the development of eco-friendly and heat-sensitive films, Zip-Pak has now introduced a range of Soft Crush zipper options suitable to be used with such structures.

Zip-Pak Soft-Crush zippers are designed to achieve high-quality seals and appearance, with lower time-and-temperature application. The zippers improve converting efficiency while minimising sealing gaps and distortion on heat-sensitive films and pouches.

With the drive towards a circular economy and consumer and industry interest growing for eco-friendly mono-material PE film and pouches, Soft-Crush reclosure zippers are also designed for recyclability and well placed to meet the needs of these structures.

The Soft-Crush range of zippers is now available in several existing popular zipper reclosure styles and sizes. This approach means the solutions can be seamlessly incorporated into existing machinery with minor or no modifications.

Zip-Pak Pty Ltd
www.zippak.com
CBS is a specialist supplier of innovative products from around the world. We strive to supply only the highest quality products to our customers ensuring the backup services to maintain the level of quality through the supply chain.

Our aim is to be your partner and understand your business, so together we can meet the ever growing challenge within the food processing business.

Our in depth knowledge of the food processing environment gives us the edge and is our real point of difference. Starting with processing techniques, through raw material/ingredients, machinery selection/installation, project management, product development, implementation and training.

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MAJA derinding, defatting, membrane skinning, flake ice machines
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LORENZO BARROSO clippers
VAKONA vacuum, massaging, tumbling, mixing, marinating
REICH smoke houses, ovens, fermentation rooms, water cookers
BOSS vacuum packing, dip tanks, auto packing lines

CONTACT
CBS Foodtech
2/7 Jubilee Avenue
Warriewood, NSW 2102
info@cbsoodtech.com.au
AUSPACK returns in 2021 at Sydney Showground

AUSPACK is one of the largest events in the Southern Hemisphere for the food, beverage and pharmaceutical processing and packaging industries. The event brings together thousands of leaders to experience world-class equipment, technology and solutions.

Taking place from 25–28 May 2021, AUSPACK provides an opportunity for the industry to come together and do business, and for visitors to acquire their total plant and production requirements, under one roof.

AUSPACK 2021 will be underpinned by a series of standout educational and networking opportunities to engage, inform and inspire. Join thousands of innovation leaders at Sydney Showground in 2021 to participate in the industry’s all-encompassing event.

Food product compliance review app

The Zigloa app is designed to simplify and streamline the compliance review process for products and labels in the food industry of New Zealand and Australia.

Zigloa.com can help to alleviate risk and financial ramifications of failed food product compliance reviews. The app acts as a guidance tool, assisting users through the abstract and challenging aspects of navigating the food regulations during a label/product compliance review.

The step-by-step, user-friendly app prompts users to answer compliance questions that bring together parts of the regulations. After completing the review process, the app helps users to determine if their product is compliant. A report showing compliance or compiling needed modifications is also provided.

An unlimited-use option allows users to come back again and again, to go through the process as needed. With the Food Tech, Double Check option, Zigloa has teamed up with New Zealand labelling consultancy McFoodies to provide users with a low-cost option for a more thorough review.

Zigloa
zigloa.com

Lightweight PET bottle

Weighing 6.5 g with a height of 195 mm, Sidel’s X-LITE Still is a lightweight 500 mL PET bottle for non-pressurised still water, offering high performance at high production speeds. The bottle is complemented by a Novembal Novaqua RightCAP26 closure.

Sidel X-LITE Still integrates the StarLITE Still base solution, already implemented worldwide due to its stability and stress resistance through the value chain. Energy savings can be made through a reduction in blowing pressure and heating power, with no compromises on packaging performance. This base design can be adapted to all Sidel blowing platforms and applied to existing production lines.

The product has been optimised by the company’s engineers for the Sidel Super Combi, a solution integrating five process steps: preform feeding, blowing, labelling, filling/capping and cap feeding. Due to its light weight, the bottle reduces the consumption of PET resin compared with heavier bottles.

Sidel Oceania Pty Ltd
www.sidel.com

Mono material lidding film

UK-based supplier KM Packaging has mono polymer structure lidding films that are suitable for all food tray types including PP Alufoil, CPET and APET.

Particularly relevant to the meat, poultry, fish and seafood markets, the company has weld seal mono-material lidding films within its K SEAL range. These have an all-polyester structure and are available with a high-oxygen barrier. They offer good transparency, with good anti-fogging properties, and weld seals to rPET or APET trays.

The entire single polymer pack has been designed for recycling in the PET recycling stream.

Features include: mono structure made of one material type; designed for recyclability; high oxygen barrier available; good transparency and anti-fogging; and suitable for protecting meat, poultry and fish.

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On 22 May 2020 — International Day of Biodiversity — the UNSW Sydney celebrated some of its recent research that is inspiring positive change in how we tackle global problems, whether it be managing climate change, bushfires or plastic waste.

One of the research projects celebrated on the day was an ‘a-peeling’ packaging solution made from banana plants, which could be suitable for the food industry.

Associate Professor Jayashree Arcot and Professor Martina Stenzel were searching for ways to convert agricultural waste into something that could value-add to the industry it came from, while potentially solving problems for another. The researchers discovered a novel way to turn banana plantation waste into biodegradable and recyclable packaging material.

“What makes the banana-growing business particularly wasteful compared to other fruit crops is the fact that the plant dies after each harvest. We were particularly interested in the pseudostems — basically the layered, fleshy trunk of the plant which is cut down after each harvest and mostly discarded on the field. Some of it is used for textiles, some as compost, but other than that, it’s a huge waste,” Associate Professor Arcot said.

Arcot and Stenzel researched whether the pseudostems could be used in packaging, paper products, textiles and medical applications, such as wound healing and drug delivery. Using a supply of pseudostem material from banana plants grown at the Royal Botanic Garden, Sydney, researchers began extracting cellulose to test its suitability as a packaging alternative.

“The pseudostem is 90% water, so the solid material ends up reducing down to about 10%. We bring the pseudostem into the lab and chop it into pieces, dry it at very low temperatures in a drying oven and then mill it into a very fine powder,” Associate Professor Arcot said.

The researchers then take this powder and wash it with a very soft chemical treatment. When processed, the material has a consistency similar to baking paper. Depending on the intended thickness, the material could be used in a number of different formats in food packaging.

Researchers have confirmed in tests that the material breaks down organically after putting ‘films’ of the cellulose material in soil for six months. They also tested that it is recyclable and poses no contamination risks for food applications.

For the banana stem to be a realistic alternative to plastic bags and food packaging, the researchers said it would make sense for the banana industry to start the processing of the pseudostems into powder, which they could then sell to packaging suppliers.

At the other end of the supply chain, if packaging manufacturers update their machines to be able to fabricate the nano-cellulose film into bags and other food packaging materials, then banana pseudostems could make food packaging much more sustainable.

“What we’re really wanting at this stage is an industry partner who can look into how this could be upscaled and how cheap we can make it,” Professor Stenzel said.

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Since 2010, Turkish machine builder Vervo Advanced Packaging Technologies (Vervo) has focused on the manufacture of modern end-of-line packaging systems. Typical customers of wraparound packaging machines are mainly local and international producers of fast-moving consumer goods (FMCG).

For the shipment of these products their primary packaging is packed in blocks into serially produced folding cartons. The wraparound packaging machines ensure fully automatic preparation of the cartons, placement of the packaged goods in the folding cartons and reliable gluing of the cartons.

At the international packaging trade fair interpack in Germany back in 2014, Vervo was introduced to Robatech’s modular and sustainable adhesive application solutions and realised these solutions were a perfect fit for the company’s requirements.

“With Robatech, we can offer our customers various hot-melt adhesive application systems and configure the most optimal variants for the desired customer applications on our machines,” explained Ali Ekrem Özüzümcü, Vervo Business Development & Advanced Packaging Technologies.

“The hot-melt adhesive application heads of the SX Diamond family operate quickly and precisely. The various jetting elements and valve heads can be combined. In addition, this allows for easy adjustment of the application angle and quick format changes.”

A lot has happened since the trade fair visit: Robatech is now equipping Vervo’s wraparound packaging machines with hot-melt adhesive application systems for carton preparation as well as carton end gluing.

With the durable SX LongLife application head and the tankless Concept Stream melter in combination with the RobaFeed 3 automatic filling system and the GlueFill granulate container, the gluing process runs automatically, very quickly and without unscheduled production downtimes.

Hakan Tanrıöven, Sales Manager at Robatech Turkey, is familiar with the reasons that led to this trusting partnership: “Robatech solutions optimise the consumption of adhesive and energy and also offer maximum safety and precision. We offer a competent and fast maintenance and spare parts service for our modular products worldwide. Proximity is crucial to us. We are continually working on further improvements together with Vervo. This brings innovative impulses for both companies.”

Ali Ekrem Özüzümcü from Vervo is certain: “In Robatech, we have found a partner who is interested in a long-term cooperation and will give us a technological edge. Without this partnership, we would not be able to pass on advantages such as reduced operating costs and increased efficiency to our customers as naturally.”

For 2020, the two companies have already planned to further optimise the hot-melt adhesive application in Vervo’s all-round packaging machines.

Robatech Australia Pty Ltd
www.robatech.com.au

Making it stick: wraparound packaging for FMCG
In response to the consumer trend for high-protein snacks, American producer of turkey products Butterball has launched a snack product that highlights the nutritional components of turkey and offers a fun and functional format.

Amcor helped bring Butterball’s vision for eye-catching packaging to life, using its easy-open EZ Peel lidding. The packaging provides good product visibility and anti-fog, as well as an elevated sensorial experience with matte film and tactile print.

“We knew exactly what we wanted from the packaging to help our snacks catch the eye of consumers, and Amcor had the exact product for our needs. The combination of an appealing design, clear visibility to the products in the package and ease of use for the consumer make this unique packaging a perfect fit for Butterball Premium Snacks,” said Jeff Mundt, Vice President of innovation and research and development with Butterball.

Amcor can also provide flexible and rigid packaging, as well as market insights and creative ideas to help its customers cater to the snacking or other expanding markets.

Recyclable packaging film
Mondi has created a recyclable polypropylene film that is suitable for the thermoforming of flexible films for modified atmosphere packaging (MAP) and vacuum packaging. This provides a longer shelf life for packed foodstuffs.

The co-extruded material includes a top and bottom web, with an internal barrier layer that comprises less than 5% of the entire structure, meaning it qualifies as a mono-material construction and is fully recyclable in existing waste streams.

The film reduces the package’s carbon footprint by 23% compared to existing conventional structures, the company claims.

Mondi Group
www.mondigroup.com/en/home/

Lightweight returnable PET bottle
The KHS Group, together with Austrian packaging specialist ALPLA, has developed a lightweight, returnable PET container, weighing 55 g.

The 1 L bottle has a high recyclate content of 35%, and by optimising the bottle base and neck, KHS reduced the weight of the bottle, compared to conventional returnable PET containers. This optimisation means that the bottle uses less material than conventional PET containers, while reducing fuel consumption and CO₂ emissions during transportation.

Despite less use of materials, the returnable system is suitable for a high circulation. The PET bottle has good resistance to caustic products, thereby maintaining its quality and appearance even after numerous washing cycles.

The optimised preforms can be blown on all KHS stretch blow moulders for returnable containers. These include the InnoPET Blomax Series V.

The packaging system is suitable for all types of beverages in the returnable container segment.

KHS Pacific Pty Ltd
www.khs.com
ENHANCING PRODUCT QUALITY FOR DIFFICULT TO GRADE FRUITS.

By offering a hybrid solution it maintains the delicate handling that a human operator can provide, while automating the decision process of grading. Therefore the operator no longer needs to constantly decide and choose which fruit to pick, which improves the end result and consistency of each box.

Zetapack has created a solution for ultra-delicate and ripe fruits, covering a sector that is hard to satisfy. The graders are designed specifically for ultra-delicate and ripe fruits and can be used with a wide variety of ripe fruits such as:

APRICOTS, PERSIMMONS, PEARS, APPLES, PEACHES AND NECTARINES.

The Zetapack sorting machine is a solution for all soft fruit varieties that are still currently worked by hand due to their softness.

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Which bacteria truly qualify as probiotics?

Today, the word probiotic is used to describe all kinds of ‘good’ microorganisms in foods and supplements: those found in yoghurt or fermented sauerkraut, or even those found naturally in the human digestive tract. But this overly broad use of the term poses a scientific problem: it does not convey a distinction between bacterial strains that have a possible health benefit in humans and strains that have a demonstrated health benefit, as shown in a human study. The frequent misuse of the term reduces transparency for consumers and causes confusion about what probiotic consumption really achieves.

Scientists have already come up with a very specific definition of probiotics: “live microorganisms that, when administered in adequate amounts, confer a health benefit on the host”.

Now, an open-access paper published in *Frontiers in Microbiology* builds on this definition, describing four simple criteria for accurate use of the word probiotic. The paper was published by eight scientists, including two board members from the International Scientific Association for Probiotics and Prebiotics (ISAPP), and was initiated by IPA Europe.

The scientists agreed that for a bacterial strain or strains to be called a probiotic, it should be:

1. pure and properly named (or “characterised”);
2. safe for its intended purpose;
3. supported by at least one well-designed human clinical trial that shows a health benefit; and
4. maintained alive in the product in a high enough dose to convey its health benefits, all the way through its shelf life.

Correct use of the term probiotic, per these criteria, will give consumers better transparency about the benefits they can expect when they consume products that contain live microorganisms. It will also allow them to weigh the costs and benefits of different products in the marketplace.

Going forward, the authors encourage scientists and companies to use these minimum criteria for identifying true probiotics. But until the time when the term is used correctly in all scientific papers and on all product labels, consumers should not assume that the word probiotic guarantees a health benefit.

Starches

Novation Indulge 3620 and 3820 starches by Ingredion are formulated to offer a clean label alternative to artificial ingredients, while providing sensory attributes like smoothness, creaminess and a rich mouthfeel.

These tapioca starches are suitable for a variety of instant beverages and semi-solid applications such as 3-in-1 coffee, ready-to-drink canned coffee, canned milk, flavoured milk drinks, soups and sauces.

Both products disperse easily in water with minimum agitation and can be used in either batch or continuous systems under a range of processing conditions. With a bland taste profile, these starches are compatible with other ingredients, making them a suitable choice for flavour-sensitive food systems.

Requiring minimum processing, the addition of hot water at ≤85°C is sufficient to activate the functionalities of these innovative ingredients. The starches also allow food and beverage manufacturers to replace dairy ingredients with other alternatives; develop healthier products, as they can build back texture in reduced sugar recipes; improve nutritional profile, without compromising taste.

Ingredion

www.foodinnovation.com
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Value through expertise
Iowa State University researchers are using aerosol-jet-printing technology to create graphene biosensors that can detect histamine, an allergen and indicator of spoiled fish and meat.

And it’s not just for meat or fish; bacteria in food produce histamine so it could also be suitable for determining the freshness of other food.

It turned out the sensors — printed with high-resolution aerosol jet printers on a flexible polymer film and tuned to test for histamine — can detect histamine down to 3.41 parts per million.

Making graphene practical on a disposable food-safety sensor is a low-cost, aerosol-jet-printing technology that’s precise enough to create the high-resolution electrodes necessary for electrochemical sensors to detect small molecules such as histamine.

“This fine resolution is important,” said Jonathan Clausen, an associate professor of mechanical engineering at Iowa State University and one of the leaders of the research project. “The closer we can print these electrode fingers, in general, the higher the sensitivity of these biosensors.”

Recently published online by the journal 2D Materials, the US researchers’ paper describes how graphene electrodes were aerosol jet printed on a flexible polymer and then converted to histamine sensors by chemically binding histamine antibodies to the graphene. The antibodies specifically bind histamine molecules.

According to another one of the research project leaders, Carmen Gomes, an associate professor of mechanical engineering at Iowa State, the histamine blocks electron transfer and increases electrical resistance. That change in resistance can be measured and recorded by the sensor.

The researchers believe the concept will also work to detect other kinds of molecules.

“Beyond the histamine case study presented here, the (aerosol jet printing) and functionalisation process can likely be generalised to a diverse range of sensing applications including environmental toxin detection, foodborne pathogen detection, wearable health monitoring, and health diagnostics,” they wrote in their research paper.

For example, by switching the antibodies bonded to the printed sensors, they could detect Salmonella bacteria, or cancers or animal diseases such as avian influenza, the researchers wrote.

Claussen, who has been working with printed graphene for years, said the sensors have another characteristic that makes them very useful: they don’t cost a lot of money and can be scaled up for mass production.

“Any food sensor has to be really cheap,” Gomes said. “You have to test a lot of food samples and you can’t add a lot of cost.”

Claussen and Gomes know something about the food industry and how it tests for food safety. Claussen is chief scientific officer and Gomes is chief research officer for NanoSpy Inc., a start-up company based in the Iowa State University Research Park that sells biosensors to food processing companies.

They said the company is in the process of licensing this new histamine and cytokine sensor technology.

It, after all, is what they’re looking for in a commercial sensor. “This,” Claussen said, “is a cheap, scalable, biosensor platform.”
**Product development virtual lab**

Victus International supplies raw material and specialty ingredients for product development in the food and nutrition, beverage and wine industries.

Its newly introduced V-Lab is working with high quality and effectiveness for all product development, with a large emphasis on those companies wanting to set a high bar when it comes to a new product idea.

Its finished formulated beverages, for example, are presented to product developers and marketers using a unique technique, which allows all organoleptic parameters being evaluated in real time, with its own development staff using its newly developed V-Lab Experience Case.

Victus developments have led to global affirmation, with Gold Medal accolades. So whether it’s an RTD, CSD, wine or beer, the company can help with new product development challenges.

*Victus International*

www.victus.com.au
Extracts for low-/no-alcohol drinks

The Kerry Botanicals Collection ZERO range of authentic botanical extracts — containing 0% ethanol — is designed specifically for the low- and no-alcohol beverage markets. The portfolio currently includes 15 standard products (and 35 others), eg, juniper, rosebud, elderflower, cocoa, turmeric, cinnamon and others, with investigations ongoing to add more tastes.

The range is designed to allow beverage producers to create low-alcohol spirits and no-alcohol options with the taste of gin, rum, cocoa, ginger, etc, all while meeting clean-label and quality requirements. It’s fully traceable, clean-label, halal-certified, kosher-suitable and, most important, ethanol-free and also free of any alternative solvent.

The portfolio allows manufacturers to maintain a low (or zero) alcohol content and permits a “0.0%” claim. It is also designed to be stable, with no haze, no sedimentation, and provides a fresh botanical taste and mouthfeel.

Kerry’s expertise in natural extraction fosters innovative “fusion distillates” that are based on a proprietary capability to blend natural botanicals (leaves, flowers, seeds, etc) and then magnify taste by running a distillate following a period of slow maturation. This allows for tailored extracts or blends that can be made to order to suit specific local and regional tastes and requirements.

The extracts range contains more than 45 single distillate profiles and five fusions distillates that can be blended and tailored to suit specific markets and create unique tastes. Some of the available botanical taste sources include juniper, ginger, rose bud, chamomile, lemon, mint, orange, dandelion, cola nut, rhubarb, burdock, elderflower, black tea, cocoa, cumin, fennel, turmeric and cinnamon, among others.

Kerry Asia Pacific
www.kerry.com

Dehydrated plate for enumeration

Enumerate Bacillus cereus with confidence using the Compact Dry X-BC plates distributed by Australasian Medical and Scientific. In March 2020 MicroVal issued a certificate for the Compact Dry X-BC plates, which has been validated to ISO 16140 against reference method (EN ISO7932:2004) for the enumeration of Bacillus cereus in a broad range of foods.

Compact Dry X-BC is a ready-to-use dehydrated plate for the enumeration of Bacillus cereus in a variety of foods, raw materials and water. Coupled with a swab, the Compact Dry X-BC may also be used for the analysis of Bacillus cereus on surfaces within the production area.

The 50 mm diameter plate contains a dehydrated culture media and a cold-water soluble gelling agent in a non-woven cloth matrix. The self-diffusing membrane allows a 1 mL aliquot of sample to evenly spread across the surface of the plate, eliminating the need for a spreader. Within seconds, the medium is hydrated and forms a gel. Compact Dry X-BC plates are incubated at 30°C for 24 hours with Bacillus cereus forming blue-green colonies on the surface of the medium.

The dehydrated plates are ready to use and certified for a broad range of foods. A self-diffusing medium means no spreader is required. The dehydrated plates have no stacking limits during incubation and are room temperature stable.

The Compact Dry range offers a wide variety of plates for in-house quality assurance personnel or laboratories to conduct routine microbiological analysis including Total Viable Count, E. coli, Coliform, Enterobacteriaceae and Pseudomonas aeruginosa.

Australasian Medical & Scientific Ltd
www.amsl.com.au

Seal quality testing system

Proseal’s ProTest seal quality testing system enables food manufacturers and processors to determine the suitable seal and peel strength for individual products. It combines protection of the contents with the right level of ‘peelability’.

The compact and easy-to-use unit is an automated lid-peeling device that measures and reports the resistance offered by the film as it separates from the tray during the moment of lid peeling. This provides the user with the relevant data to determine if the seal strength is the most user-friendly while remaining suitable for the product’s life cycle.

It is capable of retaining, displaying and outputting test data, allowing the user to export the information. Up to five test results can be compared at any one time. The unit is flexible enough to handle the vast majority of trays currently used in the market with diagonal diameters from 25 up to 380 mm in any shape.

Reports are generated on the machine’s 12” high-definiton touchscreen and can be exported via Ethernet or USB device. This provides users with traceability records and the information to monitor peel strengths throughout production.

The unit requires 1200 x 400 mm of bench space and a 3-pin 230 V power supply, offering in-house seal integrity analysis without the need for costly, off-site third-party testing.

Proseal Australia
www.prosealaustralia.com
Adulterated food results in people paying more for their food than it’s worth, as sometimes foods are bulked up with less expensive filler products. Eating the wrong food can also violate some religious restrictions on foods consumed and be a concern for people with food allergies.

Current tests to detect adulterated food are either expensive and complicated or are easy to use and cheap but not as effective, said Xiaohu Xia, an assistant professor in UCF’s Department of Chemistry.

Xia aims to establish a simple method using a new test strip, similar to a home pregnancy test. To do this, the researcher and his team are updating existing detection technology, known as a colorimetric lateral flow assay, which uses gold nanoparticles to detect meat proteins. They will create a new metallic coating, made of platinum, palladium or iridium, that will go around the gold nanoparticles to increase their sensitivity.

Preliminary results showed that using a platinum coating made the tests 100 times more sensitive than current colorimetric lateral flow assays.

The researchers will now work to increase the sensitivity and reliability of their test, including by using different metals for the coating. For this project, they are specifically looking for the presence of meat and blood in foods, such as pork protein in a sample of beef.
DIY plant-based milk and condiments

Sydney-based start-up Ulu Hye entered the market in 2017 with a range of four ‘nut mylk bases’: Almond, Hazelnut, Hemp and Mixed Nut Blend (cashew, almond and macadamia).

Designed to reduce the use of single-use containers, the nut mylk base comes in a re-usable glass jar in the form of a paste, which can be combined with water to make a plant-based nut milk that lasts 4 days in the refrigerator.

One jar produces ten litres of milk. According to the company, the product has so far resulted in reduced landfill of 500,000 cartons and counting. The product also contains no preservatives or sugar.

“We love that we’re empowering people to decide how they like their milk, and how often, whilst being gentle on their tummies. Gone are the days when you have to empty out a carton that hasn’t been used up in time. With our mylk bases you make what you want, when you want. It’s proof you can be kind to your body and bank — and the environment,” said the company spokesperson.

Ulu Hye started from two inspired women and has grown nationally and internationally. In addition to the nut mylk base it has also launched a DIY plant-based condiment range, which includes mayonnaise.
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