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Balancing the scales

with responsible aquaculture

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Richard Flanagan's book *Toxic: The Rotting Underbelly of the Tasmanian Salmon Industry* brings up many important issues brought on by the growth of salmon farming in Tasmania, but to say all farms are equal is just not true — according to Duncan Leadbitter, Australian head of the Aquaculture Stewardship Council (ASC).

With salmon replacing chicken in many Australians' diet, Flanagan claims it has now become the "battery hen of the sea".

Leadbitter welcomes the debate created by *Toxic*, but he says it oversimplifies complex challenges. He says there are responsible aquaculture farms in Australia that are doing the right thing by the environment and their communities.

"Our organisation manages standards for responsibly farmed seafood. These standards operate in a similar fashion to other types of standards that the public is familiar with, such as standards for organic and Fairtrade production. There are currently nine active leases for salmon farms in Australia certified to the ASC standard, all of which are located in the south-east of Tasmania.

"While we can't make assurances about all Tasmanian salmon farms, what we can say with certainty is if a consumer sees the ASC logo, they know the product came from a farm that has demonstrated, to an independent third party, that its production has met the world's strictest standards to minimise its environmental and social impacts."

Sharing the author's passion for protecting the environment, the ASC's mission began around a decade ago as salmon farming wasn't being held to sufficient standards.

"We know that farming can have negative impacts if farms are not managed properly and held to strict standards, but this is true of all food production.

"But rather than generalising about entire industries, we think it is better to individually assess producers based on their performance and help develop market incentives to support those that operate at the highest standard.

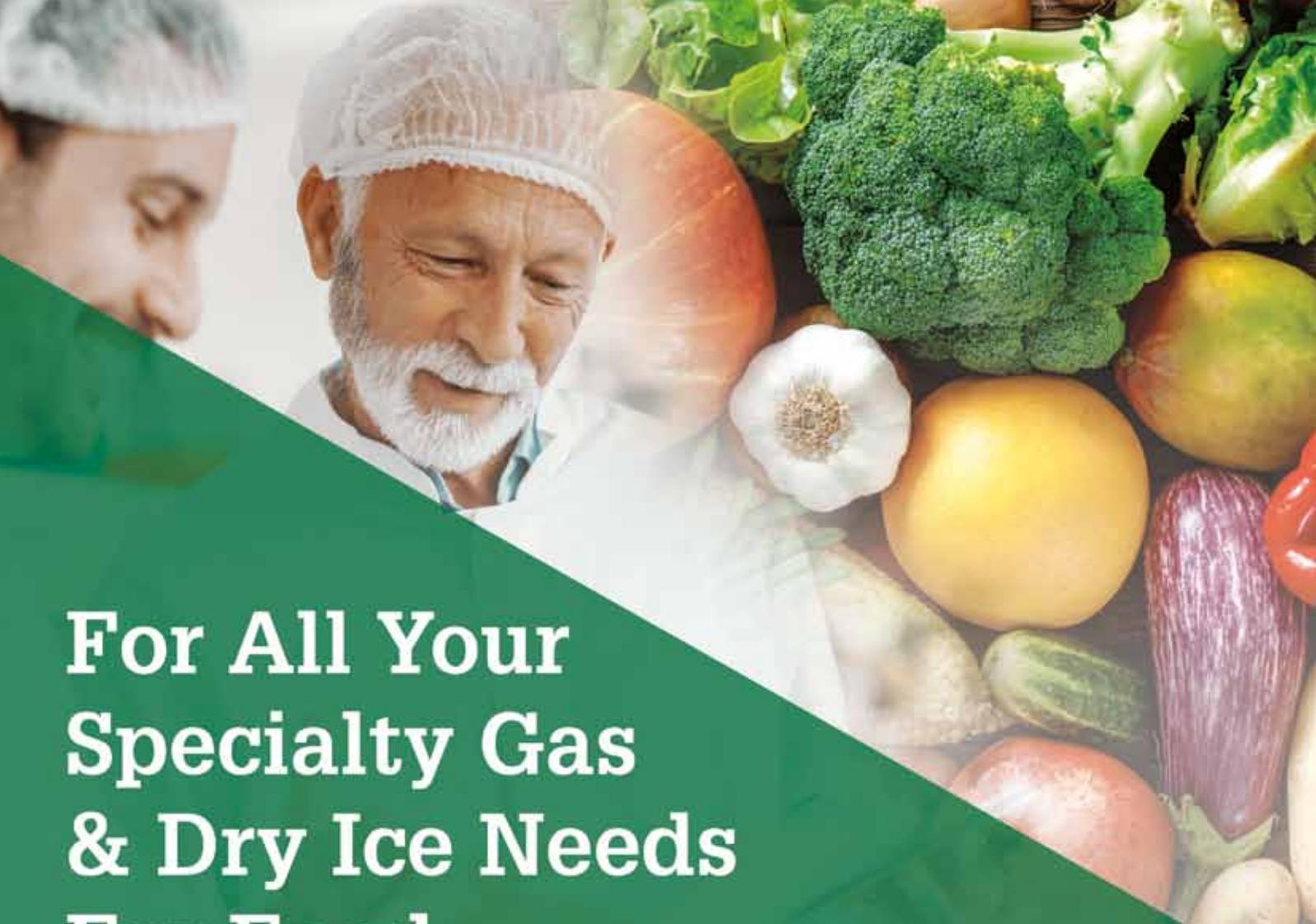
"Why? Because for starters, overall, a well-managed farm has very little impact on biodiversity, and producing farmed fish has the lowest greenhouse gas production per kilo of almost all animal proteins."

An evidence-based science program, the ASC has expertise on the subject with more than 10 years of research, development and working with farms and scientists to improve the environmental and social performance of farms.

"This means ASC-certified salmon farms must, among other things, source feed responsibly, prevent escapes, keep fish healthy without using antibiotics preventatively and maintain high water quality.

"The first principle of all ASC standards is that farms should obey their local laws and regulations, and ASC respects the role of government in setting these laws according to local need. However, if a farm's location is in accordance with the law but it doesn't meet the ASC environmental and social standards, it would not be certified.

"Every person should be aware of the issues posed by unsustainable farming, so that they can make an informed choice about what they eat. But we need to go a step further, by acknowledging the complexities of feeding a rapidly growing population and looking into the environmental and social impacts of replacing seafood with alternative protein sources."



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Food FOR thought



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SunRice's new microwavable pouch improves rice quality

Australian rice producer SunRice has announced it has enhanced its microwave pouch range to create rice that is fluffier, softer and tastier than its previous products.

The company has invested \$4.5 million in upgrading its specialty rice foods facility in Leeton in the Riverina region of Australia to deliver the microwavable products.

SunRice said that its microwave pouches will now undergo an improved manufacturing process incorporating a new technique that delivers higher quality rice than previously, all while reducing energy and water usage.

Also with a new packaging design, the new microwave pouch range is available in brown, brown and quinoa, basmati, jasmine and long grain rice 250 g and 450 g pouches.

NewCold cold store facility in Victoria to be expanded

Netherlands-based cold chain logistics company NewCold is investing a further \$160 million in its Victorian facility, bringing its total investment in Victoria to \$460 million.

The facility will be more than double the size of its Melbourne 2 facility. At 43 m high, the site will expand from 115,000 pallet positions to 225,000, an increase of 110,000 pallets. The extension will include 30,000 for ambient/chilled and 85,000 pallet positions for frozen goods.

Mobilisation and construction activities started at the end of May 2021 and the expanded facility is scheduled to be operational in 2022.

NewCold also announced a new partnership with Simplot Australia, which is planning to transition all of its frozen products to the Melbourne facility in 2023.

Simplot Australia Managing Director Graham Dugdale said: "Simplot is excited to be partnering with NewCold on our future Victorian frozen warehouse solution. We were attracted to NewCold's fully automated AS/RS high bay solution, world-class systems, energy efficiency and productivity, which stand above conventional cold storage solutions."

The Melbourne cold storage facility will use an automated storage and retrieval systems (ASRS) to automatically move and store products in the high-bay warehouse. The equipment and operators will be directed by NewCold's software systems to ensure products are kept in optimal conditions. The solution is also designed to ensure that processes are sustainable, traceable and fully integrated with customers' processes.

Abhy Maharaj, Executive VP, NewCold Business & Growth, said: "Collaborating with respected partners like Simplot drives our success, as we share an ambition to transform the industry and reimagine the global food supply chain."



© NewCold Melbourne 2 facility

Next-level circular: beers brewed with goose droppings

A beer brewed with wild herbs, food waste such as bread, berries and fruit, and even goose faeces has been created by microbrewery Ant Brew, which is located in the European Green Capital 2021, Lahti.

The Finnish city of Lahti is known for its environmental action, and has joined forces with the Ant Brew microbrewery to help craft the new beer series called Wasted Potential.

Goose droppings in the local parks of Lahti were creating a messy problem. But now the parks are cleaners as the droppings are gathered and used in a food-safe way to smoke malt to create a unique stout beer.

The beer that uses goose droppings in the malt smoking process will be released later in the year. First to be released is a wit-style beer inspired by waste-free circular economy: brewed with orange peels from a local market's juice pressing station, and fruit purees that have exceeded their best-before date.

"This series of beers is our way to create important discussions about food waste, utilisation of waste, urban farming, and local and wild food among beer enthusiasts. Working with the Lahti Green Capital has been great. We are constantly developing ways to utilise new ingredients in brewing and are not afraid to think outside of the box," said Ant Brew's Kari Puttonen.

"Our environment and circular economy are important for us, and we want to discuss these topics in interesting ways. Together we can create solutions that are eco-friendly and represent sustainable consumption," said Saara Piispanen, Head of Communications of Lahti European Green Capital.



A-peeling grant backs prawn farmers to go digital

With Australia's prawn farming industry projected to grow over the next five years, the Queensland Government has granted the Australian Prawn Farmers Association (APFA) \$200,000 to help accelerate the adoption of digital systems on Queensland prawn farms.

APFA Executive Officer Kim Hooper said the grant will help transform the industry to be more resilient and sustainable by building a Prawn Skills Digital Training Hub.

"The Prawn Skills Digital Training Hub will provide education and training material free to the industry so that farmers can meet the increased demand for their product, increase their profitability and environmental sustainability."

The project will be managed in conjunction with Central Queensland University and supported by the Fisheries Research and Development Corporation on behalf of the Australian Government.

Mark Furner, Minister for Agricultural Industry Development and Fisheries and Minister for Rural Communities, said the grants were established under Queensland's Economic Recovery plan. He said a total of \$5.5 million is being invested over three years through the Digital Transformation in Agribusiness Initiative.

"This funding, as part of our COVID-19 economic recovery strategy, will support agribusinesses to become digitally aware and ready to respond to future disruptions," he said.

"Digital technology creates new ways of doing things that add value to the agricultural sector by working more precisely, efficiently and sustainably."



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Green water bottles created by new recycling technology

Nestlé has unveiled prototypes for its Perrier water bottles based on a new recycling technology. The bottles were manufactured as part of the Carbios global consortium.

The Carbios recycling technology uses enzymes from naturally occurring microorganisms to break down PET plastic into its constituent parts, which can then be converted back into new, virgin-grade-like plastic. The process is said to be unique because it enables the production of recycled PET from any type of PET plastic, regardless of colour or complexity.

Using the technology, Nestlé researchers in France produced their first Perrier 500 mL prototype bottles made from coloured recycled PET materials. The company said the prototypes were tested in terms of safety, quality and performance. They were also specially adapted to withstand the pressure of carbonated water, while also incorporating the green coloured design.

While recycled PET bottles already exist in the marketplace, the new technology, when developed at industrial scale, will help to increase the amount of PET plastic that can be recycled.

"It is very exciting to see that the quality of the prototype bottles made from 100% coloured recycled PET materials is virtually identical to clear virgin PET," said Jean-Francois Briois, Head of Packaging Material Science and Environmental Sustainability for Nestlé Waters global R&D.

Heat and Control founder celebrates 100th birthday

The Heat and Control family celebrated a special milestone on 1 June 2021, with the 100th birthday celebration of their founder — Andrew (Andy) Caridis — in Hayward, California.

Known as a family-oriented business owner, creative problem solver and trailblazer in the industrial food production community, Andy founded the food manufacturing company at the age of 30 after serving in WWII.

He began his career in engineering in the early 1950s when industrial consumer goods manufacturers began investing in new ideas and technologies around the automation of food production to make better products, increase volume, improve efficiencies, create new product categories and reach new markets.

Credited with or supervising over 130 patents over the course of 70 years, Andy has been integral in advancing the food sector of the global manufacturing industry and helped companies large and small grow, adapt and improve significantly.

Advancements in the production of French fry, snack foods and prepared foods can be directly connected to Andy's creativity and passion to continually create something better and to always put product quality first.

Some 70 years later, there are almost 1700 people contributing to the success of his vision.

"This success is based on Andy's hard work and ability to see the future and do the right thing," said Tony Caridis, President of global food production giant — and Andy's dream — Heat and Control.

Andy continues to be passionate about solving problems and finding better ways of doing things, and to this day is involved in R&D projects and supports various engineering teams within the company.

When it comes to celebrating his achievements, Andy replies with his characteristic boldness and humour: "The first 100 years was practice; the next 100 years is the real thing."



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Food

FOR

thought



SPC mandates COVID-19 vaccine for all staff

Australian food manufacturer SPC has announced that it is mandating that all of its staff must be fully vaccinated by the end of November to gain entry to any of the company's locations.

The new mandate is being introduced to ensure the health and wellbeing of all staff and the broader community. It requires all SPC staff, including casual and permanent staff as well as contractors, to at least have the first dose of the vaccine scheduled by 15 September 2021, with the first dose administered by the end of October. Any visitors to an SPC site will also be required to be vaccinated.

"Lockdowns are not a sustainable solution and the Australian economy needs to open up again. The Delta variant poses a significant threat to our people, our customers and the communities we serve. The only path forward for our country is through vaccination," said SPC Chairman Hussein Rifai.

"As a company, we believe it is the right thing to do and we must go further to minimise risk and to protect the people we care about from the Delta variant."

Employees will be offered compensation via paid time off when required to receive their vaccinations as well as special paid leave of up to two days for any staff who may become unwell after vaccination. The company will also make case-by-case considerations for those unable to receive the vaccine for some reason.

SPC CEO Robert Giles said: "We have already implemented rigorous safety plans at all our sites in response to the pandemic. These plans have ensured our people's health, safety and job security while ensuring business continuity for the essential service we provide to the broader community. But Australian companies must go further by rapidly vaccinating their staff.

"By taking proactive steps now, we are shoring up our company for the future. We firmly believe that it will be manufacturers and innovators like SPC who will help drive Australia's post-COVID economic recovery," Giles concluded.



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Ferndale Confectionery to build new Ballarat factory

Ballarat's Ferndale Confectionery looks to expand its operations after being awarded \$400,000 from the federal government's Manufacturing Modernisation Fund.

Ferndale has immediate plans to add a third manufacturing facility to produce new confectionery products, as well as expand warehousing capacity by about 1800 pallets.

"As part of the expansion we will be looking to employ a further 10 full-timers over the next 12 months, but as growth plans continue to evolve, we hope that number to be far greater," said General Manager Leigh Edward.

Ferndale launched The So Soft Marshmallow Company in 2018, which is said to have the largest dedicated marshmallow production facility in Australia. Since then, the company has grown revenues by around 70% and now employs around 50 people across two production sites in Delacombe, a suburb of Ballarat.

The company now looks to expand its portfolio, which also includes Jila Mints and Jols Pastilles, distributed across Australia and in the US and UK. It has also become a key supplier to ALDI Australia.

Work has begun on the new 3500 m² facility and Ferndale plans to invest around \$7 million in the latest expansion.

"To receive a grant from the federal government gives us even greater confidence to continue investing in and expanding our capabilities in our Ballarat factories. Manufacturing is alive and well in Ballarat, and we plan to continue building our business in the city that we love for many years to come," Edward said.

Ferndale Confectionery was founded in 1995 by Bruce Edward and remains 100% family owned and operated. The business is now managed by Leigh Edward.



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Picture supplied by Ferndale Confectionery



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Could fibre and next-gen stevia replace sugar?

Market intelligence agency Mintel has predicted that fibre and next-generation stevia will shake up the alternative sugar market as health-conscious consumers move towards sugar-reduced products.

How the pandemic influenced sugar reduction

According to Mintel’s latest consumer research, ‘no added sugar’ claims are growing in Europe.

The company found that the UK is leading the charge with the highest proportion (15%) of European food and drink launches carrying this claim in the past five years, followed by Germany (13%) and France (10%). In Poland, ‘no added sugar’ claims have doubled since 2016, reaching 9% of food and drink launches in 2021.

Neha Srivastava, Food and Drink Patent Analyst at Mintel, said the pandemic has amplified the need for indulgence, influencing consumers’ choice of food and drink.

“At the same time, the pandemic has seen people place a higher priority on their health by, for example, reducing their sugar intake — but they don’t want to compromise on taste. Food and drink companies are starting to pay more attention to cutting sugar from their products.”

Functional fibre could appeal as a natural alternative

Mintel said functional fibres in low and reduced sugar food and drink launches are on the rise, increasing globally from 11% in 2015 to 19% in 2020. Inulin is the most common

functional fibre in low- and reduced-sugar products, with product launches containing inulin having tripled in the past five years, rising to 9% in 2020 from 3% in 2015.

According to Srivastava, consumers are aware of the importance of fibres in maintaining gut health.

“Brands can leverage this awareness by repositioning them as a multifunctional health ingredient that helps reduce sugar content in food and drink whilst improving gut health.”

The development of next-gen stevia

Alternatively, stevia as a plant-based sweetener has the potential to gain traction in food and drink launches because of its naturalness and zero calorific value, but its bitter and lingering aftertaste remains a significant barrier.

Srivastava said recent patent innovations to improve taste issues and physicochemical properties, like purity and solubility, to produce next-generation stevia may help overcome the challenge.

“Innovators are looking for alternative approaches, such as the use of sweet flavouring agents and aromas as a promising option to reduce sugar content in new food and drink products — especially in dairy desserts. This can be a promising option to reduce sugar content by providing sweet perception in brain cells.”

Mintel
www.mintel.com

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CASE STUDY

Paper bag developed for Irish spuds

Mondi has partnered with SILBO, a Polish producer of compostable packaging, to create a paper-based, high-strength packaging for the Irish farm potato business Meade Farm Group.

The bags needed to withstand very heavy weights, while providing a solution that is kinder to the planet, said Jan Murzyn, Extrusion Solutions & Specialty Kraft Paper Sales Manager Poland, Mondi.

Working closely for two years, SILBO, Meade and Mondi developed the FSC-certified bag using specialty kraft paper to ensure strength in handling while providing barrier properties to keep the produce fresh. The bag's sustainability features include: a corn starch-based netting for a small cut-out window, water-based ink and Mondi's biodegradable Sustainex coating, which provides heat sealing and moisture barrier protection.

The packaging has been launched across Ireland, Poland, France and Germany, winning the silver Fruit Logistica Innovation Award. The new solution helps Meade to achieve its sustainability goals: using packaging that is reusable, recyclable, renewable or compostable wherever possible.

"The hybrid solution combines the excellent strength of specialty kraft paper and the tailor-made barrier and heat-sealing properties of compostable materials," explained Marcin S'piewok, SILBO Business Development Manager. "Mondi's specialty kraft paper in combination with our net, water-based print and unique technology was a long-sought solution in the food industry and allowed us to substitute the conventional combination of plastic and mesh."

The compostable form-fill-and-seal potato bag with net window has been designed to deliver strong, durable, breathable, eco-friendly packaging for Meade.

Jeni Meade, Sustainability Manager at Meade, added: "By changing from the previous plastic pillow pack to this bag, we completely eliminated hard-to-recycle plastic. Additionally, when compared to a traditional block bottom paper bag of similar size, our compostable paper pillow pack reduces the paper usage by 34%."

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



Food dicing equipment

The Urschel Affinity Dicing range offers processors high-performance dicing precision for slices, dices, crumbles, granulations and strips.

The Affinity CD-L Dicer is designed to process difficult-to-cut products such as dried fruit, diced chocolate and jerky. For example, it can process: jerky (6.4 mm); diced chocolate (3.2 mm); granulation chocolate covered toffee bar (4.8 mm); granulation fruit leather (9.5 mm); dice cream-filled wafer cookie (6.4 mm); granulation sugar-infused cranberry (4 mm); strip almond (3.2 mm); granulation dried apricot (9.5 mm); dice pecan (4.8 mm); and granulation dried date (9.5 mm).

The dicer delivers uniform dices in the small to intermediate size range and combines the utility of Urschel models CD-A and L-A, plus working design elements from the Affinity Integra Dicer.

Food processors replacing L-A's models with the CD-L can achieve more than twice the existing capacity.

Types of cuts include dices, strips and granulations, two-dimensional cutting is achieved using a circular and crosscut spindle set-up.

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Protein Blog

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CASE STUDY

Cutting machine used to slice bananas

Bananas place special demands on the cutting process because they contain a lot of sugar (high degree of Brix) and have a soft consistency that is prone to damage.

With its gentle downholding technology, the GS 10-2 belt cutter from Kronen is suitable for processing sensitive products. Equipped with a conveyor belt of 125 mm width, the machine has a range of cutting accessories available for a range of applications.

In the banana application, the peeled bananas can be placed lengthways on the entry belt and held in the correct position at the cut edge so that banana slices of different thicknesses (eg, 5 mm) are produced with the best possible cutting result.

The belt cutting machine is suitable for salad, vegetable, fruit, herbs, meat, fish, sausage, bread, cheese, nuts and many other applications.

Features include: sloping surfaces; modern hygienic design; knife box with optimised ejection (products remain undamaged during unloading process); downholder technology for exact cuts without damaging the product; and safety interlock system on knife box for work safety.

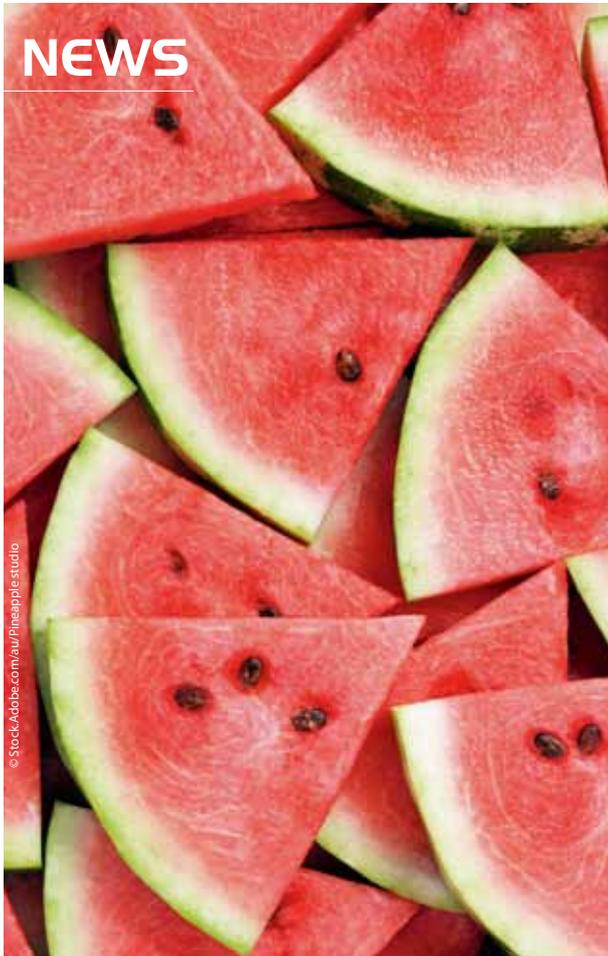
Once processed on the belt cutting machine, the banana slices can then be sold frozen or dried as banana chips.

Kronen
www.kronen.eu/en



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NEWS



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Health benefits of the watermelon

100 million tons of *Citrullus lanatus* is grown across the globe each year as fresh watermelon is a popular treat for summer, but could it also be the next super food?

Using big data and computational biology, researchers in the USDA's Agricultural Research Service (ARS) have now identified all the phytochemicals in edible fruit. The researchers concluded that eating watermelon is an excellent way to increase intake of antioxidants, non-protein amino acids and lycopene — making it good for improving overall health.

Specifically, the research found the antioxidants in watermelon can help the body fight free radicals and slow down cell damage. The fruit's non-protein amino acids can also help to repair body tissue, break down food from other meals, and could even regulate blood pressure.

“The fruit has gone through many years of evolution, domestication and selection for desirable qualities — mainly those associated with flesh colour, texture and nutrient and sugar content,” said USDA-ARS scientist Larry Parnell. “But our research continues to find that the fruit contains a wide range of nutrients that improve your overall health.”

The fruit also has more lycopene than a raw tomato, which is linked to healthy eyes, overall heart health and protection against certain cancers. Other nutrients, like carotenoids, flavonoids, carbohydrates and alkaloids, are also found in the flesh, seed and rind.

Fruits and vegetables are a part of a healthy, balanced diet, and the Australian Heart Foundation recommends eating at least five serves of vegetables and two serves of fruit every day.



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The advantages of cold aseptic filling

Chris Little, Director, HRS Process Solutions Oceania

In recent years, aseptic technology has become well established in the food and drink sector as a filling technique. Yet some businesses are still unaware of its benefits or do not believe that it can be used with their products, particularly processed fruit and vegetable products.

As consumers have become more health conscious, the demand for food and drink products without preservatives has increased. However, traditional methods combining sterilisation with hot filling have not been suitable for products that are increasingly sold on their 'fresh' and 'natural' characteristics, because of product quality.

In most cases, hot filling sterilises the container as the product (which is still hot from cooking or sterilising) is filled. However, the temperatures required often have unwanted effects on the quality of the product, and the heat imposes restrictions on the type of container which can be used — for example, hot filling of lightweight plastic drinks bottles can lead to distortion of the plastic.

Consequently, cold aseptic filling has become a common technique with drinks manufacturers for products including fruit juices and purees. Its flexibility means that it is suitable for a wide range of products from fresh fruit dices and purees to marinades and dairy products. This diversity has also seen the development of a wide range of fillers and packaging types, from

pouches and lidded trays through to bulk bags and intermediate bulk containers (IBCs).

Aseptic filling systems generally combine a number of elements into a single integrated production line. This integrated approach helps to ensure microbiological safety throughout the process from initial treatment through to the sealing of the finished product. The steps included in an integrated aseptic filling line (such as the HRS Aseptickblock) typically include:

1. Thermal treatment

Although in theory this can be any thermal treatment which reduces harmful bacteria (pasteurisation, sterilisation or cooking), in practice the types of product which are most likely to benefit from aseptic filling are those which are pasteurised or sterilised. This step usually comprises a suitable tubular heat exchanger, such as the HRS MI, DTA or AS Series.

2. Cooling (where necessary)

Depending on the product, the production process and the packaging used, it may be necessary to cool the product following pasteurisation or sterilisation. In some situations (such as the



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production of cooked items like soups and sauces), this step may actually form the first part of the integrated aseptic line, receiving hot cooked product from elsewhere in the factory. In such cases another heat exchanger will be used, such as the AS Series. If cooling the product is likely to increase its viscosity, then a scraped-surface unit, such as the patented Unicus Series or R Series heat exchanger, may be used.

3. Sterilisation of the packaging

Prior to filling, packaging is normally sterilised using thermal or chemical methods (such as peroxyacetic acid or hydrogen peroxide), although in many production environments the packaging is supplied pre-sterilised in aseptic packaging that can be put into the filling line without contamination. However the packaging is sterilised, it is vital that aseptic conditions are maintained between sterilisation and sealing, and this is another reason for adopting an integrated aseptic processing solution.

4. Filling and sealing under aseptic conditions

There are numerous systems of aseptic filler on the market, but all try to balance speed, accuracy of operation and flexibility of filling



This HRS AF Series-based system is used for pasteurising and aseptically filling fruit purees and fillings.

(for example, working with different products and containers), while maintaining the microbial integrity of the product and the sterility of the containers — including suitable cleaning-in-place (CIP) systems before, during and after production.

Depending on the product and how it is packaged, filling may be based on weight or volume and appropriate sensors (such as weigh cells of flow meters) and control systems will be included in the filler machinery. The AF Series of aseptic fillers meets all of these criteria and is suitable for both high- and low-acidity products.

Once filled, there are many ways that aseptic packaging can be sealed — from screw capping bottles to heat sealing pouches or putting lids on bulk containers. These mechanisms may also include some form of tamper-evident system to alert customers or consumers if the pack has been opened since filling.

The business case for aseptic filling

There is, of course, a financial investment required to install aseptic filling technology, but when conducting a cost/benefit analysis, some of the factors to consider include:

- **Volume:** Aseptic filling lines normally operate on a continuous basis and therefore are much faster than batch cooling operations.
- **Quality:** Probably the biggest driver towards aseptic filling is the improvement in product quality. Any heat treatments can be driven by product requirements, rather than the need to sterilise the container, making high temperature, short time (HTST) pasteurisation feasible in many cases. This preserves key quality characteristics such as taste, nutrient content and colour.
- **Flexibility:** Most aseptic filling lines can be configured to supply a range of products and fill a range of containers including PET, HDPE, LDPE, glass, cans, foil etc. Not only does this increase flexibility, but also helps to futureproof installations.
- **Packaging:** Although there may be an increase in costs associated with the need to purchase sterile packaging, many packaging types used in aseptic filling are generally lighter (and therefore cheaper) than their hotfill equivalents.

When considering aseptic filling, companies need to weigh up the safety of the proposed solution with capital and operating costs, operational safety considerations and the effect on product quality. In most situations, the business case to adopt cold filling quickly becomes apparent.

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

CASE STUDY

Bottling fruit juice using 100% rPET

European beverage company Eckes-Granini has switched to 100% recycled plastic (rPET) bottles for its hohes C juice 1 L range. KHS' Bottles & Shapes experts in Hamburg have optimised the bottles, which will continue to be produced on its InnoPET FreshSafe block.

Back in 2018, Eckes-Granini started using 25% rPET for its PET juice bottles, but a recent push in the industry towards plastic reduction made the company strive for 100% rPET.

"Bearing the EU's plastic strategy in mind and the increase in recycle quotas this prescribes, we've now decided to switch to using recycled PET only. We want to be a pioneer as regards the circular economy and set a good example for the beverage industry," said Hermann Naumann, plant manager for Eckes-Granini in Bad Fallingb. in Lower Saxony.

The changeover of the one-litre hohes C bottle to rPET is planned to save more than 4000 metric tons of new PET per year, and as a result the bottler could cut its annual carbon emissions by about 8000 tons.

Saving resources was not the only focus of the project. The ability to do so on the KHS InnoPET FreshSafe block, which has been in operation at Eckes-Granini since 2017, also had to be investigated.

"One of the concerns was whether either the preforms or machine needed adapting," said Dr Matthias Kruse, head of PET Technology at KHS.

"We thus assessed the quality of the recycled PET material. This is crucial, for large variances in colour, molecular length and inhomogeneity quickly reduce the efficiency of production."

The fact that Eckes-Granini procures its preforms from two different suppliers presented an added challenge, Kruse

said. The geometry of the preform is essential for efficient processing, especially when a high percentage of rPET is used. Through extensive testing it was established that both makes of preform function soundly on the block system. All that was needed for optimum bottle production were minor adjustments to the heater on the stretch blow moulder.

KHS said its near infrared technology (NIR) provides a wide processing window for rPET, allowing preforms to be heated prior to the stretch blow moulding process with accuracy, for example. No major changes to the machinery or geometrical properties of the preforms were required. "This enabled us to achieve a very high level of process efficiency while retaining the container quality, thus fully meeting our customer's requirements," Kruse said.

KHS said the beverage company will also continue to benefit from FreshSafe PET barrier protection after converting to 100% rPET. The oxygen barrier of chemically pure glass, a wafer-thin coating on the inside of the PET bottle, not only protects the juice from oxygen pickup but is also fully recyclable. The coating can be easily washed off the bottles during the recycling process. The packaging alternative therefore permits pure-grade bottle-to-bottle recycling.

By the end of 2022, Eckes-Granini Deutschland intends to only use PET bottles made entirely of rPET for all brands, which will save approximately 9000 metric tons of new plastic per year.

KHS Pacific Pty Ltd
www.khs.com



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Paper blister packaging wins award

Syntegon and Huhtamaki have developed a paper alternative to plastic blisters for tablets and capsules, which has won a German Packaging Award in the sustainability category. The jury was impressed by the sustainability and good functionality of the paper-based packaging solution.

“While eco-friendly and health-conscious customers can already find sustainable packaging solutions for a wide range of products, an environmentally friendly alternative for push-through packaging for tablets and capsules was not available to date. That’s something we wanted to change with Blister meets Paper,” Torsten Sauer, Sustainability Project Manager at Syntegon, explains.

While paper-based packaging offers advantages in terms of sustainability, it requires additional barrier layers to adequately protect the product without compromising recyclability. In addition, the tablets and capsules have to be pushed out of the blisters without being damaged.

“Thanks to the combination of our TPU 1000 form, fill and seal machine for paper packaging, the 3D formable FibreForm paper from BillerudKorsnäs, and the sealable barrier coating from Huhtamaki, we have succeeded in forming paper with the geometry required for tablets in cavities of three to four millimeters,” explains Matthias Klausner, Sustainability Expert at Syntegon. In the future, the paper blisters will also be available



with diameters of 6–10 mm to package larger tablets such as pain killers.

Huhtamaki used the same sealable barrier coating for the blister’s lidding material as in the base material, and finished it with a special process to push the tablet easily through the material. The environmentally friendly material concept consisting of a thermoformable base film and a push-through lidding film with barrier coating is marketed as “Huhtamaki Push Tab paper”. The thermoformable barrier and seal layer is also heat-sealable, which makes the paper blister packaging’s barrier properties comparable to classic blister packaging made of mono-PVC or aluminium.

The Blister meets Paper paper blisters can be printed on both sides, while an embossed brand logo can be applied to the top.



AgraStrip Gluten G12

GLUTEN FREE

FMCG Industry Solutions has launched a test kit for gluten, expanding its product portfolio for food allergens. The AgraStrip Gluten G12 is a lateral-flow device for on-site factory testing to verify the presence of gluten in the environment or products. The kit uses a next-generation antibody called G12 that targets the most immunotoxic proteins for consumers intolerant to gluten. Call us now and learn how to prevent allergen cross-contamination.



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Heinz Tomato Ketchup introduces 100% recyclable cap

Kraft Heinz has announced it is introducing sustainable caps for its squeeze sauce bottles in a move that will make both the bottle and cap 100% recyclable.

The cap has been created after Heinz invested eight years of research and development involving more than 185,000 hours and US\$1.2 million (AU\$1.6 million) to find a suitable replacement cap for its sauce range.

The company created 45 different designs in total on the mission to create the new cap, which was developed in-house using a 3D printer. After creating the prototypes, Heinz said it followed a rigorous testing procedure to make sure the cap met the highest quality standards.

The first varieties to get the new cap will be Heinz Tomato Ketchup and Heinz BBQ Sauce. The cap will be rolled out globally from 2022, starting in Europe.

To date, Heinz sauce bottles have used a flexible valve, which had been designed to deliver one portion of sauce per squeeze, but was challenging to recycle. The new cap has been designed to provide the same squeeze except with a single, rigid and more recyclable material.

“We’re excited to be announcing these first-to-market innovative new caps, meaning our consumers can now recycle every part of their Heinz squeeze bottle in their weekly kerbside collection,” said Jojo de Noronha, President of Kraft Heinz Northern Europe.





Low-carbon material for microwavable ready-meal trays

Trayforma by Stora Enso is a wood fibre-based material composition designed for microwavable food tray packaging. The renewable material is free of PET, has a low share of PP and is claimed to have a lower carbon footprint compared to traditional meal tray products. The material contains up to 95% wood fibres, making it recyclable in most existing carton packaging recycling schemes.

The material is up to 95% fibre-based and uses less than half of the barrier weight of current heatable materials.

Trayforma ready-meal trays are also available with a PET coating when conventional heating is required.

Stora Enso Australia Pty Ltd

www.storaenso.com



Stand-up shaped pouches

KM Packaging has added pre-made stand-up shaped pouches to its product range. The company recently provided a customer in the US with pouches for confectionery products featuring thematic designs for Easter, Halloween and Christmas.

Suitable for dried snacks and pet treats as well as confectionery, the key features of the pouches include: pre-made, shaped and printed with heat-sealable opening; clear windows so the product can be seen by consumers or solid white finish; gusseted at the bottom, allowing the pouch to stand upright on retail display; and quality Roto-Gravure print.

Available with zip-lock reclosure, the pouches can be supplied in mono polymer structures (PE/PE and PP/PP).

The pouches are designed to have a good shelf appeal and are available in a matt or glossy finish.

KM Packaging Services Ltd

www.kmpackaging.com



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Recyclable reclosure zippers

Due to the development of eco-friendly and heat-sensitive films, Zip-Pak has 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 are designed to 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, the reclosure zippers are also designed for recyclability and are well placed to meet the needs of these structures.

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

Zip-Pak Pty Ltd
www.zippak.com



Meat and seafood trays

Multisteps Industries has introduced a range of meat and seafood trays, which is compatible with all leading tray sealing platforms.

Available in all common tray sizes and depths, the company can also cater for unique tray sizes, designs, depths and branding options.

Made from 100% recycled PET, the trays can be coloured or tinted.

Other features include: high denesting functionality; maximum strength, minimum weight; good clarity for optimum merchandising and good product shelf life.

The packaging is compatible with major automated packaging equipment and is recyclable.

Multisteps Industries
www.multisteps.com.au



Automated flexo platemaking line

Asahi Photoproducts' and Esko's flexographic (flexo) platemaking line, CrystalCleanConnect, can fully automate the entire flexo platemaking production for the packaging and labels markets.

From imaging to platecutting, the line reduces the number of steps in the platemaking process from 12 to one. This is designed to reduce operating time and human error.

Blending hardware and software, the processing line also does not require VOC-based washout solvents in the platemaking process.

Esko Australia Pty Ltd
www.eskoaustr.com

CASE STUDY

Sustainable packaging solution for snack food range

Packaging solutions provider Parkside has teamed up with chilled savoury product producer Addo Food Group (Addo) to create a sustainable reclosable pack for its Sainsbury's mini sausage roll range.

Parkside used its expertise specialising in compostable and recyclable packaging solutions for the food and drink sector to help Addo meet its sustainability targets to reduce food waste.

The 100% recyclable PET tray and lid solution for Addo is designed to help reduce food waste by retaining moisture in the product and preventing it from going stale.

Addo Project Manager Alexandra Maudsley said the company collaborated with Parkside on a similar product, which prompted an extremely positive customer response.

"We were very impressed with the quality," Maudsley said. "We strive to be innovators and industry leaders in the chilled savoury market and working with Parkside is enabling us to achieve that."

The packaging solution comprises a clear tray with a heat-seal lidding film laminate with built-in reclose technology. Suitable for sealing to APET trays, the pack created for Addo also enables the consumer to avoid additional plastic such as cling film to keep the food fresh during use.

The design features improved barrier performance, which can help keep the product fresher for longer. It uses a single polymer design, making it suitable for existing waste recycling collection systems.

"We have spent a lot of time and effort understanding the needs of both our retail customer and the consumer, and the development of this pack provides them both with added waste reduction and sustainability benefits," Maudsley concluded.

Parkside
www.parksideflex.com



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CASE STUDY

Microwavable packaging for 'heat & eat' range

Tray sealing specialist Proseal has helped Asian-inspired food brand itsu diversify into the retail market.

Using the facilities of Proseal's Test Kitchen, itsu has been able to produce user-friendly microwavable packaging for its new 'heat & eat' range, which includes gyoza, bao bun and 'hotsu'postu' food products.

The two companies worked closely throughout the product development stage, trialling different tray concepts, materials and processes to identify the best packaging solution. The packaging needed to be in keeping with the brand and ensure complete product compatibility to maintain the quality and freshness of the products.

"We needed a pack format that created the right impression on-shelf while offering maximum convenience and ease of use for the consumer," said Bryony Roberts, Packaging Development Manager, itsu.

The company has now commissioned tooling for the three chosen tray designs, suitable for high-speed filling on its GT1 tray sealing machine.

"Proseal provided invaluable support in developing a process that exactly met our criteria, while also being able to provide quality equipment that meets the needs of our busy production line," Roberts concluded.

Proseal Australia
www.prosealaustralia.com



Thermoforming packaging machine

GEA's Powerpak SKIN.50 thermoforming packaging technology provides processors with high-capacity packing of products of up to 100 mm high that protrude up to 50 mm above the level of the packing tray.

Designed for processors of sliced products, meat cuts, sausages, fish, hard cheese and high-end products such as quality seafood, it can also perform vacuum and MAP packaging on the same machine.

The machine is designed with an index length up to 600 mm, up to eight tracks and four rows of product. It also features top film guiding and a preheating station. This avoids tapering of the film and makes the top film easier to form to prevent wrinkles.

The SKIN packaging wraps products like a second skin, even products with sharp edges and irregular shapes. It is designed to eliminate air, preventing oxidation and maintaining the product's original colour and flavour; provide good shelf life; keep juices and marinades within the package; provide a clear view of the entire product; and minimise packaging waste by using thin films and recyclable paperboard webs.

GEA Group

www.geagroup.com.au





Getting compostable fruit labels ready for NZ phase-out

Jenkins Freshpac Systems has been awarded a gold medal in development and creativity for its industrial compostable label. Now the firm has its eyes firmly set on testing and refining a home-compostable fruit label.

Jamie Lunam, General Manager of Jenkins Freshpac Systems, said the company had been working on the home-compostable fruit label for quite some time.

NZ Environment Minister David Parker recently announced that single-use, non-compostable plastic labels will be phased out by mid-2023.

While Lunam said his company is supportive of the action to reduce plastic, the company along with its international

partner, Sinclair International, have asked that the government consider removing fruit labels from the list of single-use plastics to phase out.

“Our team and the growers and marketers we work with are passionate about providing sustainable, innovative packaging that minimises waste. Together, we have already worked on projects that have seen around 40,000 kilograms of plastic diverted from landfills,” Lunam said.

“We’ve been working on sustainable packaging and labelling for over a decade without a mandate from government, [and] we’re at a stage where no additional resource, funding or duress will speed up the process. The work is well underway, we just need a little more time than we’ve been given by the Minister to complete our development process.”

While the team is in the final stages of testing for a label that meets this standard, it’s not effective on all fruit.

“We’re going to need every bit of time we can get and are concerned the Minister’s goal of being ready by 2023 is too tight for us to have a solution for all produce,” said Lunam.

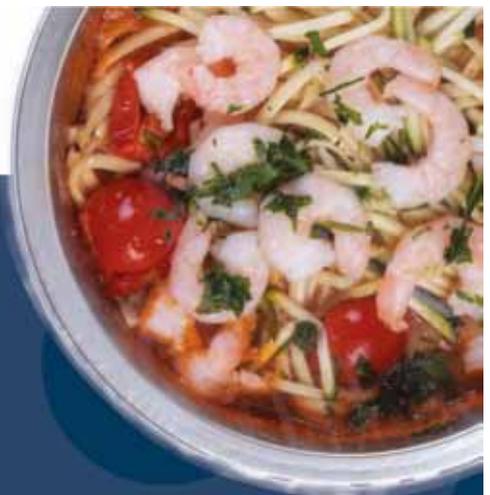
Lunam believes the inclusion of fruit labels in the list of unnecessary plastics belies the value of the product.

“Fruit labels play an important role in both the traceability of the produce and the protection of our local \$6 billion horticulture industry. The information contained on that micro-thin sticker enables consumers all over the world to identify their highly sought-after New Zealand-grown produce.

“If that critical information isn’t on the tiny fruit label, it needs to be on larger, less sustainable packaging, so getting the labels right is really important to reducing waste. Fruit labels actually help to de-package produce,” he said.



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Krill protein pilot plant being built in Norway

Aker BioMarine is a biotechnology company based in Norway that fishes for Antarctic krill — tiny shrimp-like crustaceans — and uses them to develop ingredients for functional foods, aquaculture and animal feed. GEA is now partnering with the company to develop a new pilot plant for hydrolysing krill protein, which will produce a highly concentrated protein isolate destined for food and beverages.

Following extensive research into protein powder, Aker BioMarine has developed a production process that converts protein flour into high-quality protein hydrolysate powder for human consumption. In commissioning the pilot plant, which will expand production from the current lab-based operation into a scalable, industrial process with a capacity of 120 tons per year, the company will develop

and sell commercial products and work with partners to create new market opportunities.

GEA will engineer the pilot plant for krill protein with a view to sustainability. It has been tasked with designing all technical processes in the krill protein hydrolysis pilot plant as well as supplying and integrating the machinery and components. The plant will have a flexible design using the GEA CODEX based automation system, which lends itself to further product development and innovation.

“The functional food — or New Food — market is currently evolving very dynamically. Innovators such as Aker BioMarine are not only unlocking entirely new sources of human nutrition and health but also doing so without compromising the climate and environment. We are thrilled to join Aker BioMarine on their journey into researching and



commercialising krill protein,” said Heinz-Jürgen Kroner, Senior Vice President Liquid Technologies at GEA. “Assisting in developing new food sources provides us with an exciting opportunity to showcase our own creativity in process technology.”

Slated to come online in late 2022, the pilot plant could serve as a benchmark for further protein hydrolysis equipment in the future.

© Aker BioMarine

Scroll compressed air technology

Demands from industry to reduce energy costs, improve reliability and provide a safe working environment have created the need for a viable alternative to the piston-type air compressor. While the piston-type, reciprocating air compressor has been the workhorse for workshops and smaller industry applications, they can be somewhat inefficient, expensive and noisy in operation.

Kaishan's Scroll, fixed orbit, lubricated range of advanced compact air compressors can provide benefits over the conventional piston-type compressors. Scroll technology has produced a compact air compressor with direct drive and dynamically 3D balancing that delivers quiet, stable and energy-efficient performance, which is claimed to far outstrip equivalent piston type, reciprocating machines.

With the added benefit of continuous load capability and an integral after cooler to reduce moisture carryover, the scroll compressor can provide a compressed air supply with lower energy bills. The dynamically balanced, non-contact, fixed orbit technology can also result in longer element life.

Unlike old piston technology, the scroll compressor includes an advanced digital control panel for ease and safety of operation. This provides operators with monitoring capabilities for all key compressor functions, fault detection and protection, and service due alerts.

Scroll OX series air compressors can provide higher output ratios to energy input and with fixed orbit direct drive there are zero transmission losses and no need to oversize the compressor to manage load cycles. The direct drive configuration also means there are no drive belts to wear and replace.

The scroll compressor is now available as a fully integrated, tank-mounted system complete with large 500 L receiver tank and optional built-in refrigerated dryer and air filter unit. This plug-in, ready-to-use compressed air system can save on independent component purchase, installation costs and floor space while efficiently delivering ample clean air for all applicable industry applications.

Kaishan Australia Pty Ltd
www.kaishan.com.au



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Potentiometric titrators

The HI932 and HI931 potentiometric titrators are designed to deliver accurate results and an intuitive user experience, all in a compact package.

Fully customisable to meet testing needs, these titrators feature a 50% smaller footprint than the previous line of automatic titrators to optimise the user's benchtop and increase productivity.

Both the HI931 and HI932 allow the user to titrate for a variety of measurements at the push of a button, including acids, bases, redox, and selective ions. With no additional programming upgrades to purchase, it can be operated straight away. In addition, the HI932 will allow the user to perform direct measurements and back titrations for complex samples.

Reports and methods can be transferred to a PC via a USB interface, saved to a USB storage device or printed directly from the titrator. An external keyboard can also be attached for added convenience.

Where greater automation is required, the HI932 can be paired with the HI922 Autosampler for more accurate results with the least amount of effort, automating up to 18 samples.

Hanna Instruments Pty Ltd

www.hannainst.com.au

Metal-detectable hygienic enclosure range

The T-TYPE Hygienic enclosures from ILME provide a detectable solution for the food processing industry.

The blue levers of the enclosures range are now metal detectable, made of a special plastic blend with metal additives that allow detection of small particles via metal detectors.

The enclosures are ECOLAB, EHEDG Guideline n.32 compliant, making them suitable for the food industry splash area. They also offer an IP66/IP67/IP69 degree of protection.

The surface mounting housings can be equipped with a shaped planarity gasket, available in four sizes CR 06/10/16/24 GTPC, which fills the space between the enclosure and the panel and closes any gap or dead space causing the potential nesting of hazardous dirt.

Treotham Automation Pty Ltd

www.treotham.com.au



Industrial vacuum

EXAIR's Reversible Drum Vac is designed for the safe recovery of fluids like coolant, hydraulic oils, sludge and chips, wastewater, tramp oil and liquid spills. The Reversible Drum Vac's powerful vacuum can fill a 205 L drum in just 90 s and, with the turn of a knob, the same stainless steel pump can quickly empty the drum. The flow rate in and out of the drum can be controlled with the knob, making it useful for dispensing liquids.

Electrically operated all-purpose vacuums aren't designed for use in industrial environments and as a result, motors wear out quickly and impellers clog. Powered by compressed air, the Reversible Drum Vac has no moving parts, no electric motor to wear out and has no impellers to clog, assuring maintenance-free operation. The product is designed for continuous and heavy-duty applications where electric vacuums fail and can also be used for lighter-duty applications.

CE compliant, the Reversible Drum Vac has built-in pressure/vacuum relief and attaches quickly to any closed-head 205 L drum. An automatic safety shut-off valve prevents spills or overfilling.

Compressed Air Australia Pty Ltd

www.caasafety.com.au

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CASE STUDY

Cheese plant doubles processing capacity

GEA has installed a cheesemaking plant for Madeta — a dairy company in the Czech Republic.

The new plant can process up to 400,000 L of milk a day — twice the capacity of the former facility. Each day, the plant produces up to 42 tons of hard and semi-hard cheese, including Maasdam, Emmental, Edam, Gouda and Tilsit.

Although the old production plant had reliably served Madeta for many years, the upgraded technology and production methods provided an opportunity to improve efficiency, yields and technological safety, as well as increase production.

The new installation includes milk storage tanks with connections to both upstream and downstream pasteurisers; five new 15 m³ integrated cheese vats; fresh water and dosing systems; whey extraction and storage; and heating of the cheese vats via the double jacket. GEA also supplied a new hygienic starter preparation system and the CIP system for the entire cheese area.

The whey processing line was supplied exclusively by GEA in the Czech Republic, with technical support from GEA Engineering Office in Büchen, Germany. The process includes double pasteurisation, involving one new line — including whey clarification and cream separation — and one existing line, which was upgraded. The existing separators were reused. GEA's Refrigeration Technologies division supplied a 500 kW NH₃ heat pump and optimised the existing refrigeration system for the new cheese plant.

Automation

Automation is provided through GEA Codex software, which includes both the GEA master and dynamic recipe systems, providing full control of the cheesemaking process.



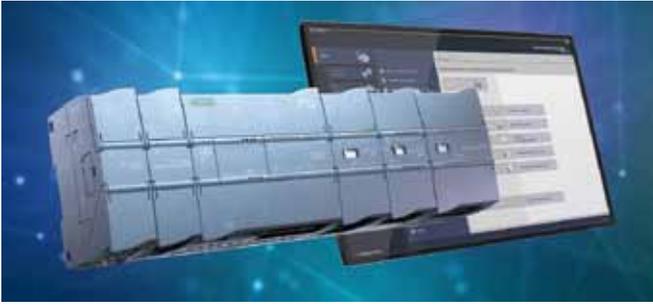
The GEA master recipe includes every element of the process line, including specifications regarding the addition of rennet, starter, wash water, colour and calcium chloride.

As part of this project, GEA also implemented its cheese milk calculator. Based on the quantities of cheese sold, this program uses the cheese recipe to back-calculate the amount of cheese milk required and the ideal fat to protein ratio. Depending on the protein content of the raw milk, the calculator determines the mixture needed from the raw milk silos to achieve the ideal cheese milk composition as closely as possible. It is easy to adjust the fat content of the cheese milk, but the protein content can only be modified at this plant by mixing raw milks with different protein ratios.

While the new Madeta plant in Planá is designed to process up to 400,000 L of milk per day, its capacity can be increased to up to 600,000 L a day if required.

GEA Australia
www.gea.com





Controller for automation tasks

The Siemens SIMATIC S7-1200 controllers are a good choice when it comes to flexibly and efficiently performing automation tasks in the lower to medium performance range. They feature a comprehensive range of technological functions and integrated communication as well as a compact and space-saving design.

The controller is designed as a compact CPU, which means that IOs are already integrated. Yet the S7-1200 station can be equipped with additional IO modules to enlarge the capabilities of the PLC and make it suitable for a range of Australian industry applications.

Fail-safe CPUs can be selected when safety is required in the product offering.

Because of these features, the S7-1200 offers some of the most flexible possibilities with enhanced cross-platform data transfer with other controllers and higher-level or cloud-based systems. The applications are numerous, ranging from industrial use to agriculture and infrastructure projects.

The seamless integration of the SIMATIC controllers into the common engineering framework TIA Portal provides consistent data management, the smart library concept and a uniform operating philosophy. This makes it easy to use for system-spanning functions.

Efficient error analysis and fast error localisation with the new uniform display concept shortens commissioning times and minimises production downtimes. The controller provides users with diagnostic functionality already integrated in the system without additional programming work.

Secure communication, know-how protection, copy protection and access protection prevent manipulation, opening and duplication of blocks by unauthorised persons, thus protects the user's algorithm or process.

The controllers are suitable for compact automation solutions with integrated IOs, communication and technology functions for automation tasks in the low to medium performance range.

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Heavy-duty touch screen display panel

Interworld Electronics has released the FABS-119PH food-grade stainless steel projected capacitive touch screen computer display.

The display is housed in a fanless aluminium enclosure with a 304 or optional 316 grade stainless steel bezel that provides IP66/IP69K front panel protection. Part of the FABS Series, the FABS-119PH has been optimised to meet the hygienic design requirements of DIN EN 1672-2 and DIN 42115, Part 2. These European standards establish high standards for food and beverage processing equipment.

The 19" 1280x1024 resolution LCD with a 7H anti-scratch projected capacitive touch screen is suitable for operator panel and HMI control applications. It features a 900 cd/m² high-brightness, sunlight-readable LCD screen and is suitable for agricultural application where exposure to direct sunlight may occur. For indoor processing facilities, it is available with a standard 350 cd/m² LCD panel. If a touch screen is not required, it can also be supplied with a plain glass protective screen.

The series supports DC 9~36 V power input and an operating temperature range of 0~50°C. The FABS-119PH is only 64 mm deep. Panel and VESA mounting makes the FAB Series convenient to install.

Interworld Electronics and Computer Industries

www.ieci.com.au

Filling machine

The modular concept of Syntegon's inline filling machine LFS allows individual configurations to meet the specific needs of dairy and food manufacturers.

Available in clean and ultra-clean hygienic executions, the machine fills and packages liquid, viscous and pump required products, such as yoghurt, sour cream, margarine, deli salads, dips, sauces, soups, or retorted pet food into preformed containers.

The machine consists of individual modules which include main machine functions such as cup supply, disinfection, filling, sealing, capping, and cup discharge. Each module can be configured, added or retrofitted according to individual production needs for maximum flexibility.

It processes all common container formats with a diameter between 60 and 160 mm on up to eight lanes with a maximum output rate of up to 20,000 cups/h. In sequential indexing configuration, alternating carrier plates allow for processing two different packaging formats one after another without format changes needed.

The dosing station incorporates exchangeable nozzles as well as integrated CIP and SIP for ultra-clean configurations.

The open design provides optimum accessibility and visibility for easy cleaning and maintenance.

For ultra-clean applications such as products with extended shelf life, users can opt for two types of chemical-free disinfection methods: UVC light or pulsed-light. Optionally, the same technology can be used to disinfect the lids before placing them on the cups. In addition, HEPA filters purify the air, while container vacuums remove loose particles and debris from the cups before filling.

Packaging can be sealed either using pre-cut foils or heat-sealing rollstock film.

Syntegon Technology Singapore Pte. Ltd

www.syntegon.com



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Meat and cheese slicer

The GEA OptiSlicer 6000 can slice both regular and irregular shaped foods such as sausage, salami, cooked ham and cheese without the need for crust feeding. It has eye-level electronics and a clear-view operator panel for easy operation. It can also be mirrored in left- and right-hand versions to minimise footprint and enhance productivity.

The machine, which can operate at speeds up to 15,000 rpm, is simple to maintain. The slicer is available in 1200 and 1850 mm versions. The 1200 mm version can be upgraded to the 1850 mm version later, if required.

GEA Group

www.geagroup.com.au

Food contact-compliant water filter nozzles

It's been 20 years since the French Health Authorities introduced a rigorous safety standard to prevent drinking water contamination caused by plastic filter nozzles. Since then, a number of additional safety certifications have been introduced for components that come in direct contact with food and water intended for human consumption.



One of these is 1935/2004 EC. It ensures materials do not release their constituents into food or water at levels that are harmful to human health. It also ensures the materials do not change the composition, taste and odour of food in an unacceptable way.

ILMAP is now able to provide users with Food Contact Compliance on its full range of filter nozzles.

Most recently, ILMAP was granted the European Food Safety Regulation 1935/2004 EC across its range of polypropylene, ABS, PVDF and stainless steel water filter nozzles.

It has also met the requirements of (EU) 10/2011 "plastic materials and articles intended to come into contact with food".

In addition, ILMAP water filter nozzles have achieved the following certifications: WRAS (UK); D.M. 174 (Italy); ACS Health Certification (France); and NSF BS6920 (UK).

ILMAP water filters are available from Tecpro Australia.

Tecpro Australia

www.tecpro.com.au

Durable drives with preventive measures up to OS4

XCO's gear units and motors can provide additional protection against typical corrosive agents in industrial environments, such as moisture, oils, dirt and chemicals, than what is provided as standard. Additional treatments and special materials allow these devices to be used even in extreme conditions. The drives can be used in any atmosphere, from low moisture and contaminants to environments with regular wet cleaning using acidic and caustic agents.

The surface protection levels range from standard to levels OS1 to OS3. With the ASEPTIC package, OS4 is set as standard.

The XCO drive package also includes a tin-nickel surface protection that prevents coating from coming off and provides a stainless steel-like appearance. In addition, the XCO drive package includes stainless steel screws, IS connectors and motors in IP69K degree of protection.

SEW-Eurodrive Pty Ltd

www.sew-eurodrive.com.au



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Almond processor reduces electricity demand by 15%



One of Australia's largest almond growers, Select Harvests also manufactures nut products, health snacks and muesli, and exports almonds globally.

Select Harvests' Carina West Processing Facility in Victoria produces 30–35,000 tons of almonds per year. The facility's baghouse filtration equipment is used to remove the almond hull and shell by-products, which must always be operating throughout the production process.

The company has commissioned a biomass power station that consumes approximately 30,000 tons a year of this biomass waste. The waste is burned to produce high-pressure steam to run a steam turbine and produce power on site, and the waste ash is directed to a compost facility, which is returned to the company's orchards.

A progressive circular approach, the combination of the almond production, biomass power station functionality and steam turbine system, requires a stable electrical network. Due to a weak power grid in the area, harmonic distortion was introduced into the power network, creating unwanted electrical disturbances.

It was these harmonics that were causing the unexpected failure of motors for Select Harvests. The non-linear load in the power system was impacting power distribution, creating a voltage distortion that was leading to increased operational downtime. Following an instance of a motor breakdown, Select Harvests called upon ABB Authorised Value Providers A1 Electric Motors and Remtron to help find a solution.

Anthony Merrett, Automation Support Engineer for Drives and Power Quality at Remtron, said, "The electrical stress caused by harmonics and high starting currents pollute electrical networks with dirty power that can make connected equipment behave erratically. In severe cases they can cause damage to sensitive electronic equipment, overheating in electrical distribution equipment, interference in communication equipment, and give false readings on measurement devices."

Issues discovered during assessment

A1 Electric Motors and Remtron performed a full-power quality analysis on site which included an investigation of the plant switchroom and current power factor.



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Inspecting product in the bag filter area.

Finding a sustainable solution

ABB's ACQ580 ultralow-harmonic (ULH) variable speed drive (VSD) was identified to be the best solution for Select Harvests, as part of an overall drive and motor equipment upgrade for the plant. Installed within 48 hours of the existing equipment failure, the instrumental advantage of the ABB value provider network was fully realised. Without the fast turnaround, Select Harvests would have experienced tens of thousands of dollars' worth of downtime for its processing facility.

ACQ580 ULH drives are engineered to reduce harmonics in the power network. They integrate easily with existing infrastructure, so there was no need for Select Harvests to oversize its electrical system or increase budget for broader investment in additional infrastructure. Also, by using this clean technology, the need for any additional filters or power quality equipment is eliminated. By reducing the non-linear load on the power distribution system, all machines are able to operate efficiently and reliably.

The combination of the ultra-low harmonic technology found in ABB's ACQ580 drive, along with a motor upgrade performed by A1 Electric Motors, has resulted in a reduction in harmonic distortion and energy demand of 15%*. Total harmonic distortion (THDi) is now less than 3%.

Further analysis on the drive revealed that the harmonic distortion of the supply to the baghouse had decreased from 40% THDi to 2% THDi, with a power factor increase from 0.9 to 1.0. This power factor of 1 (unity power factor) out of the drive in operation means no extra reactive current is needed to attain the required power output for the baghouse operations.

Davis said: "Another additional benefit of the ABB solution was that it didn't require any infrastructure upgrades or system upgrades to implement. The integration was easy, the footprint was the same, and the cable sizing didn't need to change."

Select Harvests is now installing additional ABB drives as part of its entire site power quality management upgrade.

*Based on 4320 hours per annum running at 40 kVA difference, this represents a saving of 172,800 kWh per annum.

ABB Australia Pty Ltd
www.abbaustralia.com.au

It was discovered that Select Harvests was experiencing 6% of harmonic voltage distortion (THDv) in stationary mode, even without any equipment in operation at the point of supply. "The largest producers of harmonics within their system were four large drives running the baghouse motors," said Chris Cheong, Managing Director at A1 Electric Motors.

Mark Davis, Process Improvement Engineer at Select Harvests, expressed his objective to implement total power factor correction. "Ordinarily, we'd have gone for the typical option which is a capacitor-based system with harmonic filters. But after talking to A1 Electric Motors and Remtron, they advised that the higher harmonics in the area would still lead to damage to that equipment over time and wouldn't have the lifespan that we'd expect out of our equipment.

"In seeking a solution from alternate providers, the equipment they specified would have been detrimental to capacitors because they didn't consider power quality and a fully integrated solution."

The goal became to help Select Harvests increase power efficiency and reduce energy demands overall.

Aseptic drive range

Altra Motion brand Bauer now offers a range of AsepticDrives that have asynchronous motors with a hygienic design that is suitable for the food and beverage industry. In particular, washdown applications.

With a fan-free design and no cooling ribs, the motor has a completely smooth outer casing which is sealed by a matching non-drive end shield. The smooth surface can be cleaned simply and effectively without allowing any pockets of dirt to accumulate.

A stainless steel round connector comes as standard, which allows a quick and simple electrical connection of the motor. This connector contains not only the motor contacts but also those of the thermistors. The hygienic concept is also ensured due to the smooth surface of the connector.

Other features include: easy-to-clean design allowing cleaning agents to drain off completely; dirt traps are avoided;

re-infection points avoided around the motor; the fan-free design means no air turbulence occurs; high degree of protection IP 67 as standard (optional with IP 69K); with acid and alkali resistant paint; and motor windings equipped as standard with thermistors and class F insulation.

Suitable for frequency inverter duty, the motor is available in optional solid or hollow shaft in stainless steel V4A (1.4571) and can be easily fitted onto any gear in the BG, BF, BK or BS series.

Altra Motion Australia Pty Ltd
www.altramotionaustralia.com

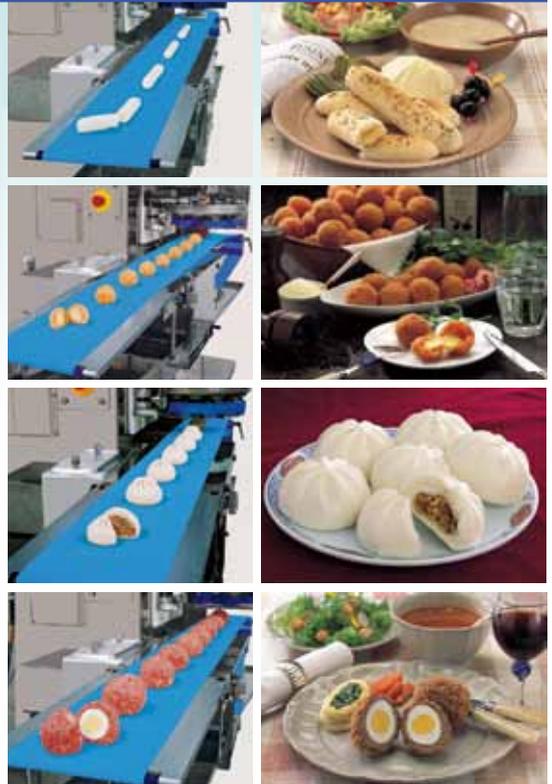


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Energy supply chain system for cleanrooms

High abrasion resistance is crucial for machine elements in cleanrooms. igus has therefore now developed the C6, an energy chain designed to meet the highest cleanroom class. 'C' stands for its place of use — the cleanroom — and '6' for the number of individual parts per chain link.

The chain is specially designed for longer unsupported applications on machines and systems, and is based on the E6 and E6.1 cleanroom series from igus. A new connector system and a specially tribologically optimised high-performance polymer make it even smoother, easier to assemble and virtually free of any particles in motion.

Using the system, cables and hoses are to be guided in an abrasion-resistant and smooth manner even on medium travel distances in cleanrooms such as in electronics production, the semiconductor industry, packaging machines, medical technology and pharmaceutical production. For this, igus relies on a new type of connecting system for the individual chain links, which makes the chain easy to assemble and lightweight, as well as strong and vibration-dampening. The system is designed to save 74% weight compared to the previous series.

The idea for the C6 was developed in cooperation with a large electronics manufacturer and the Fraunhofer IPA. Test series with the e-chain are currently running in the in-house cleanroom laboratory in Cologne. The initial tests are reported to have shown the high abrasion resistance of the chain, so the company is optimistic that it will also receive cleanroom ISO class 1 classification.

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Rosemount 1408H Non-Contacting Radar Level Transmitter

Compact, easy-to-use Rosemount™ 1408H Non-Contacting Radar Level Transmitter with IO-Link Connectivity provides accurate, non-contacting measurement to help optimize operations and ensure food safety in the food and beverage industry. It is compatible with CIP/SIP processes while minimizing contamination risk and assuring product safety. The Rosemount 1408H transmitter has received the Red Dot Design Award for Product Design 2021 and has been acknowledged for its stylish, innovative and patented cooling design, which allows the transmitter to withstand high cleaning temperatures frequently used to kill bacteria, while still retaining a compact and robust form. Dedicated features include a hygienic compact design, Fast Sweep Technology and exceptional radar beam focusing and IO-Link communication.

Non-contacting radar is an ideal level measurement technology for applications that require stringent hygienic facilities and equipment. It is virtually maintenance-free, which helps it to ensure long-term reliability, in sharp contrast to legacy technologies. It has a top-down installation that reduces the risk of product loss through leakage, and it is unaffected by process conditions such as density, viscosity,

temperature and pH. The compact and robust form of the Rosemount 1408H makes it a suitable solution for the small tanks and space-constrained skids commonly used in food and beverage production. The hygienic antenna is flush with the process connection that ensures the removal of process residue during clean-in-place and sterilize-in-place processes and is insensitive to condensation and build-up. The hygienically approved, IP69-rated device has a stainless-steel housing with minimal crevices to withstand external washdowns and ensure cleanability.

The Rosemount 1408H transmitter uses 80 GHz Frequency Modulated Continuous Wave Technology on a single electronic chip with embedded smart algorithms. This enables exceptional radar beam focusing, so that internal tank obstructions such as agitators can be avoided, and greater measurement accuracy achieved. Fast Sweep Technology makes the Rosemount 1408H the quickest level measurement technology on the market, collecting up to 40 times more information than legacy transmitters. This increases measurement accuracy, enabling manufacturers to reduce the amount of product lost through wastage,

maximize production capability, and reduce production variations, leading to increased product quality and batch consistency. The Fast Sweep Technology also enables measurements all the way to the top of the tank, with this elimination of radar dead-zones enabling users to maximize vessel utilization.

The Rosemount 1408H is the first non-contacting radar transmitter with connectivity to the IO-Link communication protocol, making it easy to integrate with any automation system. In addition to digital high-speed communication, it also features conventional 4-20 mA and switch outputs. It features innovative technology and smart algorithms to ensure installation and commissioning are made easy, saving time and helping ensure trouble-free operation. Together with the new Rosemount IO-Link Assistant software, which sets the parameters via IO-Link, the experience of using Rosemount IO-Link devices is enhanced even further.

IO-Link is a standardized technology (IEC 61131-9) designed with simplicity in mind for fast configuration, commissioning, and wiring. IO-Link systems consist of an IO-Link master, IO-Link enabled devices, unshielded 3 or 5 conductor standard cables and an engineering

tool for configuring and assigning parameters. Producers can gain critical process insights about their operations to maximize productivity in their facility.

Rosemount IO-Link Assistant

- Communication and configuration software designed to access device parameters and configure instruments to match process requirements.
- Devices can be configured through singlepoint configuration using a Rosemount IO-Link USB Communicator or multi-point using a Rosemount IO-Link Master.
- Dashboard provides a real time view of the process data.

Rosemount IO-Link USB Communicator

- Enables singlepoint configuration.
- Designed to connect IO-Link enabled devices to a PC.
- Supplies power to IO-Link enabled devices via USB.

Rosemount IO-Link Masters

- Enable data exchange between IO-Link devices or instrumented a control system.
- Multiple devices can be connected with inputs ranging from 4 to 8 port configurations.
- Data is converted to either Ethernet/IP or PROFITNET for integration with the control system.
- Daisychain IO-Link Masters to allow more devices to communicate with the control system using one cable.

Rosemount IO-Link Enabled Devices

- IO-Link is available on the Rosemount 326L Level – Guided Wave Radar, Rosemount 1408H Non-Contacting Level Transmitter, Rosemount 326T and Rosemount 327T Temperature Transmitters.
- Instruments can be connected to Rosemount IO-Link Masters using a standard unshielded cable up to 65 ft (20 m) long.

Emerson Hygienic Portfolio

When tasked with optimizing your plant's production, the smallest oversight can result in excessive downtime and lowered profitability. Installing hygienically-certified instrumentation keeps your processes under control, maximizes production capacity and efficiency, and ensures stringent safety standards are met. The new line of Rosemount pressure, level, and temperature transmitters offer food and beverage facilities the opportunity to improve key metrics.

Rosemount 1408H in applications from the food and beverage industry

The ability to accurately and reliably measure the level of materials in storage tanks and process vessels is essential as it helps to reduce product loss and maximize production capability. Manufacturers also need to consider vital criteria, such as the compliance with the industry's stringent hygiene and food safety standards and the compatibility with the process conditions and tank layout for the different applications.



Mixing tanks

Application: Mixing tanks are a common application in the food and beverage industry where two or more components are blended together with the intent of making them homogeneous.

Challenges: Agitators, turbulence, foam, CIP/SIP processes

- The Rosemount 1408H is not affected by changing density, temperature or pressure. Process conditions such as foam do not pose a challenge.
- With Fast Sweep Technology and smart algorithms, the Rosemount 1408H can easily handle agitator and turbulent surfaces.



Fermentation tanks

Application: Fermentation is the process by which, for instance, yeast converts the glucose in the wort to ethyl alcohol and carbon dioxide gas — giving the beer both its alcohol content and its

carbonation.

Challenges: Foam, CIP/SIP processes

- The Rosemount 1408H detects CIP cleaning thanks to the Fast Sweep Technology and smart algorithms.
- Fermentation applications don't pose a challenge for the Rosemount 1408H.



Open Air Applications

Application: Small open batch and/or storage tanks with various food ingredients.

Challenges: Quick filling, possibly low DC, narrow tank geometry, no process connection.

- The Rosemount 1408H is compact, light, and easy to mount (with a mounting bracket).



- It handles quick filling thanks to the Fast Sweep Technology and 80 GHz.
- It can be mounted in narrow installations without problems.

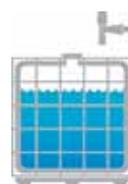


Storage Tanks

Application: Storage tanks can be found in different points of the process within the food and beverage industry.

Challenges: Foam, CIP/SIP processes

- The Rosemount 1408H features a polished stainless-steel housing and food graded wetted parts that withstands CIP/SIP and is easily cleanable.
- Reduced risk of contamination in food and beverage production processes.



IBC Monitoring

Application: Storage tanks can be found in different points of the process within the food and beverage industry.

Challenges: Foam, CIP/SIP processes

- The Rosemount 1408H features a polished stainless-steel housing and food graded wetted parts that withstands CIP/SIP and is easily cleanable.
- Reduced risk of contamination in food and beverage production processes.

For more information, visit:

[Emerson.com/Rosemount1408H](https://www.emerson.com/Rosemount1408H)

[Emerson.com/RosemountFoodandBeverage](https://www.emerson.com/RosemountFoodandBeverage).



CASE STUDY

Mixing large beverage tanks with a bottom-entry mixer



A Victorian-based food processor had a requirement to mix increasing volumes of a non-dairy milk but had limited resources or space to expand. It asked the Teralba technical team to assess whether or not it was possible to use some old 220,000 L milk silos and install agitation.

The key criteria to convert the old milk tanks into mixing vessels for non-dairy milk included ground level installation and servicing; and the ability to mix from full 220,000 L down to 5000 L.

The solution: Mixquip Series 500 Bottom Entry Agitators

Teralba has expanded its range of Mixquip Series 500 Bottom Entry Agitators.

A bottom-entry mounting configuration provide a powerful axial flow up through the contents of the tank. Combined with a level sensor and variable speed drive, Mixquip Bottom Entry Mixers have the ability to mix down to less than 5% of the total tank volume.

A further advantage is the compact design and short shaft, which mean lower capital costs than a traditional top-entry agitator.

Teralba Industries
www.teralba.com

High-temperature HEPA filters

Camfil's range of high-temperature HEPA filters are specifically designed to protect processes at high temperatures and are suitable for use within sterilisation or depyrogenation processes in the food processing and life science industries.

Tested according to either EN779 and ISO 16890 or EN 1822:2019 and ISO 2963, Camfil high-temperature HEPA filters meet the strictest requirements and maintain their integrity and rated performance under extreme temperatures.

Camfil's Sofilair V-bank style filters are lightweight and suitable for maximum continuous operating temperatures up to 120°C, offering low pressure drop for energy savings and long filter life.

Camfil's Airopac HT and Absolute FRSI box-style filters offer high stability and are suitable for maximum continuous operating temperatures up to 250°C.

Typically used for depyrogenation tunnels or ovens and suitable for maximum continuous operating temperatures up to 350°C, Camfil's Termikfil and Absolute FRK-V box-style filters offer mechanical stability in high velocities.

Designed for aseptic filling processes that require maximum production uptime and safety, Camfil's patented Absolute D-Pyro is the premium high-temperature HEPA filter with a working temperature up to 350°C to peaks at 400°C and tested ramping to + 5°C per min. Achieving ISO Class 5 compliance all across the tunnel and H14 compliance in the production 'hot zone' with zero emissions, tempering and cleaning, the Absolute D-Pyro is also designed and manufactured under the Camfil ProSafe Quality & Certification Program.

Camfil Australia Pty Ltd

www.camfil.com.au



Integrated isolator for aseptic processes

The Intiso integrated isolator from Metall+Plastic offers complete isolator protection for filling and sealing processes with a reduction in outlay.

The modular design has eliminated the HVAC unit and relocated the cooling and ventilation units from the technical floor to the isolator plenum. Instead, the compact units can be accessed above the manipulation unit.

The isolator draws in preconditioned air from the cleanroom, meaning it is also suitable for standard applications.

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www.optima-packaging.com/en



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CASE STUDY

Ice cream maker automates to improve traceability



Brazilian ice cream company Baccio de Latte wanted to implement an automated data monitoring system to improve its production efficiency and traceability. Advantech assisted the ice cream manufacturer with converting its manual processes into automated digitalised processes. This allowed the company to track all products as they move through the supply chain, achieving product traceability and ensuring food safety.

Product traceability has become an essential for the food and beverage industry. In many countries, it is even a legal requirement. By keeping a record of the entire production and distribution history, suppliers are able to react quickly to any issues. In the case of a product recall, for example, suppliers can determine the source of the problem and tell distributors to remove the product from shelves.

The challenge

For the ice cream manufacturer, weighing and mixing ingredients are some of the key processes. Previously, after weighing and separating the ingredients, operators at Baccio de Latte used a printed spreadsheet. This increased the potential for errors, data losses and imprecise measurements and mixtures. Thus, the company required

a solution that would enable it to automate all the weighing and measuring processes as well as the data collection/documentation.

Additionally, because all the production processes were manual, there was a lack of traceability in terms of product identification, batch separation or even accurate final weight measurements. This lack of traceability also impacted the logistics department, which had difficulty separating orders and sending out correct product quantities.

It was also difficult to assess whether the operators were performing production procedures accurately and taking correct measurements. This reliance on manual processing and lack of product traceability resulted in substantial waste and inconsistent production. Accordingly, Baccio de Latte wanted a solution that would convert its manual processes into automated processes for easy tracing and monitoring at every stage of production to facilitate improved process management and operational optimisation.

Solution

For this project, Advantech collaborated with a software company to develop the overall solution architecture. Advantech provided the hardware, namely its SPC-515

panel PCs and AIM-65 tablets, for monitoring and managing the various production processes and stages. The panel PCs and tablets were used to access the manufacturing execution system (MES), control the material flow and track the recipe.

For weighing the raw materials, the panel PCs were connected to the scales via a serial port. Once a job order is received from the MES and the ingredients are fed into the production machines, the panel PC automatically verifies the weight and proportions of ingredients at each production stage to ensure the recipe is followed exactly. If the material measurements and recipe is confirmed to be accurate, labels are printed.

Data of the pasteurisation process, tanks and mixers was also collected and integrated for monitoring using the SPC-515 panel PCs. The AIM-65 tablets were equipped with barcode readers and used to add additional production notes, system interruptions, maintenance requests and to create labels for the finished products. Then, printers connected to the same network were used to print the barcodes and product labels.

Advantech's SPC-515 panel PC is IP69K rated and enclosed in SUS 304L stainless steel housing that is resistant to oxidation, corrosion and bacteria. The true-flat screen prevents the accumulation of dirt and facilitates regular sanitation for a truly hygienic design. In accordance with the DIN EN 1672-2 standards for food processing machinery, Advantech's SPC-500 HMIs are built with specially designed screws that are resistant

to residue build-up. This prevents microbial contamination during food processing. The provision of serial ports and wireless connectivity allow the devices to be easily integrated with the weighing scales.

Meanwhile, the AIM-65 tablets equipped with a barcode reader are designed to be rugged and robust in order to support mobile computing. The flexibility and durability of Advantech's hardware were key advantages for this project. Because Advantech products can support devices produced by other manufacturers, they can be easily integration with existing legacy infrastructure. In addition to product flexibility, the hygienic design of the hardware satisfied strict hygiene requirements and ensured food safety during processing.

Result

By replacing the manual production processes with an automated system, the ice cream maker was able to reduce inconsistencies and inaccurate measurements and achieve production traceability and enhanced control for operational predictability and reduced waste. Moreover, by introducing automated data collection and processing, it was able to conduct flexible monitoring for pre-emptive maintenance and process optimisation.

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Mixer

Keeping the temperature of raw meat down and reducing its exposure to air is essential to ensure that its quality, shelf life and safety are not compromised. This becomes even more important to monitor when reducing the particle size of meat.

Many in the industry have come to favour the integrated mixer-mincer to produce flavoured minced meat for their sausages, burgers, meatballs and so on. Due to the design of most mixer-mincers, however, operators must run the mince back through the auger after a mixing cycle. Even when there are no knives and plates in the barrel, this excess movement can overwork and overheat the meat, compromising the product.

Having an independent mixing machine can eliminate this risk. Mainca mixers have a tilting bowl and a reverse function which allows for the easy discharge of product into a tub. The reverse function can also be used for kneading, helping to eliminate air pockets in the mixture.

The breaker bars can be removed so the mixer can also be used for massaging and marinating whole-muscle cuts. Mainca mixers can similarly be used for blending spices or dressing salads. The T-shaped paddles are manually dismantled without the use of tools.

Mainca mixers are available from 20 L models suitable for R&D purposes up to 200 L models for larger processors.

Barnco Pty Ltd

www.barnco.com.au



AI bottle inspection technology

Empty bottle inspectors often will show false readings when water droplets or foam remain on the bottle after cleaning. This leads to perfectly usable bottles being classified as having defects resulting in them being discarded.

Krones Linatronic AI technology employs deep learning software to detect and classify anomalies automatically with a reliability rate of more than 99.9%.

Deep learning is a technology that enables machines to do what we humans do naturally: learn from example. But a machine can use this ability many times more efficiently than humans can.

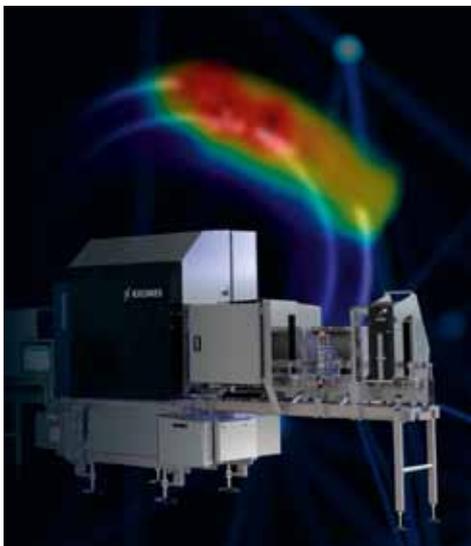
The foundation for deep learning is an artificial neural network (ANN), which can be described as a complex system of multiple consecutive filters.

The images captured during the inspection process are fed through these filter layers, one after the other. Each layer extracts a different characteristic of the image.

The Linatronic AI's neural network comes fully trained. It is continually fine-tuned using thousands of example images until it can accurately distinguish water droplets from other anomalies. As a result, waste of material due to false rejects is no longer an issue.

Krones (Thailand) Co Ltd

www.krones.co.th



Diaphragm valves for aseptic processing

The extended range of Alfa Laval Unique DV-ST UltraPure diaphragm valves is designed to make high-performance aseptic processing easier.

Fully customisable, the enhanced, ATEX-compliant range comes with slimmer stainless steel actuators and lightweight cast valve bodies.

The DV-ST actuator range is designed to shrink the footprint of aseptic processes and boosts productivity.

The space-saving range of stainless steel actuators operates at a wide range of pressures. Options include a stroke limiter, economical valve position indication and comprehensive automated valve sensing and control. For special application requirements, there's the DV-ST high-pressure actuator.

Alfa Laval Pty Ltd

www.alfalaval.com.au



Portable compressor with electric drive

Kaeser Compressors' Mobilair range of portable compressors features electric drives. They are quiet, require little space and are emission-free, so they can also be set up inside buildings without hesitation.

The Kaeser Mobilair e-power series of portable compressors have a quiet electric drive that works completely without exhaust gases. A 32 A, three-phase socket is sufficient to connect the power pack to the necessary power supply. The compact

system delivers 2.6 m³/min at 7 bar. This means that the mobile electric compressor is not only suitable for construction sites, but can also be used as a quick and flexible bridge in the event of a compressed air bottleneck in industry.

In addition, its robust construction enables continuous operation at ambient temperatures between -10 and +40°C. It also features an integrated hose reel with a compressed air hose.

Mobile compressors are available in different designs, different sizes and with different additional equipment so that the most suitable version for the operator can be selected.

Kaeser Compressors Australia
au.kaeser.com



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Preventing wastage in the milk supply chain

Milk is said to be one of the top five wasted ingredients in Australia, with litres of spoiled milk going down the drain every day. Australian dairy is very mindful of its stewardship role and the need to reduce waste from farm to manufacturing and beyond, so this mathematical modelling research from US scientists, including one now at the Washington University in St. Louis, may be of interest.

The scientists integrated their knowledge across milk production and processing, microbiology and the supply chain to try to find a solution to the age-old problem of spoiled milk.

Two main strategies were found for the beginning of the milk supply chain — on the farm and in the processing plant — to prevent psychrotolerant (cold-growing,) spore-forming bacteria from contaminating and prematurely spoiling milk:

1. Premium payments such as bonuses (or penalties) based on lower (or higher) spoiling bacteria counts in raw milk.
2. Investing in spore-reduction technologies at the processing level.

Their study, concluding that enacting both strategies could improve some milk shelf life anywhere between a half-day to 13 days, was published in July in the journal *Frontiers in Sustainable Food Systems*.

The study targeted the problem of premature spoilage of milk caused by bacteria — *Bacillus sp.* and *Paenibacillus sp.* — which enter raw milk on farms and whose hardy spores can survive pasteurisation.

Supply chain incentives:

Farmers should be encouraged to implement fixes and improve processes from the get-go — starting with milk from the cow's udders — if they are rewarded for consistent high-quality milk in terms of spore-forming spoilage bacteria contamination and penalised for low-quality milk.

Contracts similar to this bonus/penalty guideline already exist in US livestock commodities such as eggs and chicken, the authors noted. In this paper, the researchers propose a new, flexible bonus/penalty system based solely on raw milk's initial spore counts at production.

Processing-level interventions:

Milk-processing companies know that technologies such as microfiltration and bactofugation are costly to acquire, install and operate. But this research illustrated how using both of those approaches, including a third, double-bactofugation method, were the most effective ways long-term to eliminate spore-forming bacteria from milk.

Their models predicted, by using such processing-level interventions and investments, shelf lives for milk would increase across the board. That improved shelf life — defined as the first day when 5% of milk packages carry a specific bacterial count — ranged from 20–26 days (for small processing plants) to 28–31 days (medium) to an average of 34 days (large).

In short, the research showed that medium and large processors could enact interventions and improve their milk's shelf life up to 13 and 12 days, respectively.

According to Forough Enayaty Ahangar, a newly arrived lecturer in supply chain optimisation at the Olin Business School: "The results of our optimisation models demonstrate that optimal combination of interventions is highly dependent on characteristics of each individual dairy processor. These characteristics include the volume of processed milk and the quality of supplied raw milk. Therefore, our optimisation models provide novel decision tools from which individual processors can benefit and determine the best strategy for their facility."

The ultimate goal of the research is to support the development of a sustainable milk production supply chain with the help of digital tools development, where milk waste is reduced.

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Ion air gun

EXAIR's Intellistat Ion Air Gun is a handheld and lightweight solution to static elimination in clean processes or sensitive assembly work such as scientific and electronic test facilities, laboratories and cleanrooms. The gun is designed to consume minimal compressed air while simultaneously delivering precise blow-off and static decay rates capable of reducing 1000 V to less than 100 in less than a second at up to 610 mm away.

The gun is activated with an ergonomic short throw trigger which requires minimal effort.

Constructed with a low-voltage transformer converting 120 to 24 V, it is designed to ensure user safety, in addition to using an EXAIR engineered air nozzle to maximise efficiency and meet OSHA requirements for sound level and dead-end pressure.

Compressed Air Australia Pty Ltd

www.caasafety.com.au



Electronic solenoid interlock

The AZM40 by Schmersal is a small electronic solenoid interlock with dimensions of 119.5 x 40 x 20 mm.

It is suitable for small safety doors and flaps that do not close at 90° or those that open upwards to a 45° angle, due to its 180° flexible actuator.

Despite its compact size, the product has a 2 kN interlocking force, in addition to its integrated RFID technology for increased tamper protection.

Even in the event of a power failure, the interlock retains its current position to enable safe operation whatever the status of the machine and remains safely locked.

Another advantage of the bistable principle is the consistently low energy consumption, as the interlock only requires power when the door is to be locked or unlocked. It features optimised symmetrical mounting on 40 mm profiles that can be bolted on either side, with LEDs visible from three sides.

For applications with personnel protection (interlock monitored), the safety outputs area is switched on when the safety door is closed and the interlock locked. The AZMB40B model (actuator monitored) can be used for applications with process protection. In this variant, the safety outputs are actuated as soon as the safety door is closed.

Control Logic Pty Ltd

www.controllogic.com.au



Industrial display

Backplane Systems Technology has released the Aplex FABS series industrial display, which is designed to meet the hygiene requirements of the food and beverage industry.

Designed to prevent food or other materials from contaminating in the manufacturing process, the series has the option of achieving food safety standards with EN 1672-2 certification.

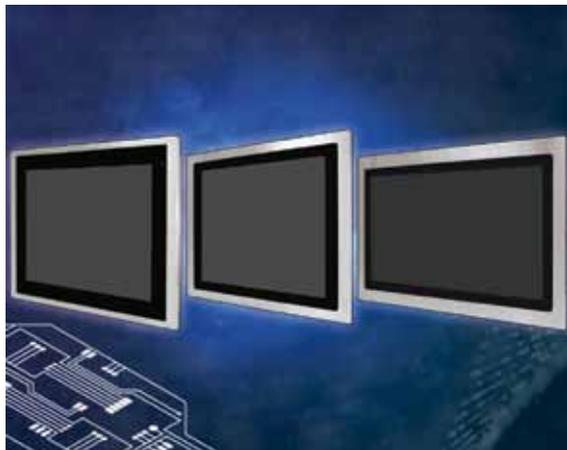
Further, the series implements safety and hygienic design HMI with SUS304/316-grade stainless steel; and IP66/IP69K rated water- and dust-proof flat front bezel to prevent any containment from the manufacturing process.

The display comes with processor, completed I/O interface, and more alternatives via expansion cards for upgrading to Industrial IoT and Industry 4.0.

Key features include: fanless, 9–36 VDC Power, stainless steel, flat bezel, touch screen, IP69K F panel, wide temperature options and designed to meet the hygiene requirements of the food and beverage industry.

Backplane Systems Technology Pty Ltd

www.backplane.com.au



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Unlike most chillers in the marketplace, MTA chillers are specifically designed for the food and drink industry, as confirmed by countless prestigious customers worldwide in the most diverse and demanding applications.

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Would you like tastier gluten-free bread?

Gluten-free products are becoming increasingly popular, mainly due to demand from people with coeliac disease but also from other consumers for health-related or faddish reasons. The problem is that some of these products may not meet consumers' expectations in terms of appearance, aroma, flavour and durability.

Now a research study focusing on ways to enhance gluten-free products is being pursued in Brazil by nutritionist Vanessa Dias Capriles, a professor at the Federal University of São Paulo (UNIFESP) in Santos. The work has developed new formulations for gluten-free bread combining chickpea flour and psyllium, a plant-derived soluble fibre. The resulting product is said to be nourishing and rated highly by consumers in qualitative surveys.

"The development of these products is a major technological challenge," Capriles said. "Bread made with wheat flour has been an important human food for millennia. The sense impressions it causes are deeply ingrained in people's lifestyle. That's why it's important to develop enhanced versions of these products. Market research shows that consumers are dissatisfied with the appearance, aroma, variety and convenience of the products currently available."

Besides deficient sensory quality, gluten-free bread is often nutritionally poor. "Generally speaking, it's made with refined starch such as rice bran combined with corn, potato and cassava starch," Capriles said. "It contains little fibre, proteins, vitamins or minerals, and relatively large amounts of fat. It's not enriched with micronutrients in many countries."

The research underway at UNIFESP has three goals: improving the overall nutritional value of gluten-free products;

increasing their acceptability to consumers; and seeking technologically feasible solutions.

The group researched different raw materials, including wholemeal flour from cereals such as rice, sorghum and millet; pseudo-cereals such as amaranth, quinoa and buckwheat; and others such as chickpeas, dry beans and pine nuts.

To increase the fibre content, they tried using psyllium, with positive results. Psyllium is a fibrous material made from husks of the seeds of the plant *Plantago ovata*. Every 100 g supplies 80 g of soluble fibre. It is hygroscopic and expands to form a gelatinous mass when mixed with water.

"We succeeded in producing bread with 17% psyllium. Because it absorbs water, dough made with psyllium can be moulded into many shapes, just like rolls and loaves made with conventional wheat flour," Capriles said. "In more recent studies, we associated psyllium with chickpea flour and obtained surprisingly good results. Besides high acceptability and nutritiousness, its advantages include a low glycaemic response [it does not raise blood sugar significantly] and heightened satiety in healthy people. Another very interesting point is that it maintained its acceptability even after being stored at room temperature for seven days."

Next steps include finding partners in industry to transfer the technology to, she added, as well as moving ahead with the research and development on a collaborative basis.

For more information, read the study 'Psyllium improves the quality and shelf life of gluten-free bread' in the journal *Foods*.

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Measuring a liquid's fingerprint in real time

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Finnish tech company ColloidTek Oy (Collo) has developed a technology that allows producers to monitor the state of any liquid in industrial processes continuously.

The radio wave-based analysis can be used for thick slurries, resins, adhesives, coatings, emulsion, beer, water and any other fluid irrespective of viscosity.

It works by an electromagnetic resonator emitting a continuous radiofrequency field into the liquid. The signal reacts to interferences caused by different components, chemicals and phases in the liquid. The analyser immediately warns if the process is disturbed in any way so that the process can be adjusted according to the online data.

Matti Järveläinen, CEO and founder of Collo, said the sensors can be placed anywhere in the process to optimise, for instance, the use of raw materials and chemicals in the critical process steps.

“Our analyser monitors the process constantly, compared to manual samples that provide a delayed snapshot of the process status at a given time. The advantage of real-time monitoring is that it takes away the guesswork when adjusting the process, which in turn can save a lot of chemicals, materials, energy and time,” he said.

The solution, dubbed the Collo Analyzer, simultaneously measures eight proprietary parameters from a liquid, forming the liquid's fingerprint.

If these characteristics are changed during processing, the analyser shows the changes so that corrective measures can be made immediately.

“The solution, dubbed the Collo Analyzer, simultaneously measures eight proprietary parameters from a liquid, forming the liquid's fingerprint.”

”

“A brewery is an example of a typical slurry process, where solids are blended into the liquid followed by several critical steps that each has to be optimised to get an even quality. Now it is possible to measure these critical steps in real-time using one single technology,” Järveläinen said.

Collo also combines data and analytics with liquid measuring technology to provide actionable information for improved process performance. For optimal results, analytics are adjusted for each liquid application.

“Once adjusted, the same system can be replicated in similar processes,” Järveläinen said.

“This is especially beneficial for customers that have a vast number of identical liquid processes, as they are able to achieve significant economies of scale with Collo. The analyser is very low maintenance since the sensor is not sensitive to dirt and does not require cleaning.”



A reliable, cost-effective wastewater solution is vital during the pandemic

Most food and beverage businesses continue to supply and service Australians and the overseas market despite restrictions due to the pandemic. Many fresh and packaged food businesses have increased production to meet demand, putting pressure on their wastewater flows.

Businesses across Australia need to know that their wastewater solution will always meet their specific needs, regardless of increases or decreases in flow rates. Having reliable, efficient and cost-effective wastewater systems in place has never been more important.

General Manager of All Natural Kitchen in Sydney, Colin Hart, said the support from wastewater treatment company, Aerofloat during the pandemic has been exemplary.

“At All Natural Kitchen, we provide fresh food components on a large scale. Companies have relied on us to provide high-quality products during the pandemic, including during the Sydney lockdown periods. As a result, our wastewater system has needed to run at full pace during this time.”

The company provides nutritious, fresh food items and condiments including wet spice cores and frozen foods.

“Aerofloat’s team of engineers have been on hand to support as required, with monthly servicing of our plant to ensure it runs at

optimal levels at all times. This has ensured uninterrupted operations for our team at All Natural Kitchen throughout the pandemic,” said Hart.

Providing essential support to Australian businesses year-round to ensure safe, compliant wastewater has been a priority to Aerofloat throughout the pandemic. Aerofloat’s General Manager, Michael Anderson, said that the food and beverage industry has been a focus for Aerofloat’s servicing team during the pandemic.

“The food and beverage industry has really felt the pinch of the pandemic. Whether it’s been a sudden decrease in production and therefore a drop in wastewater flow rates, or a dramatic increase to meet unusual demands, we’ve worked hard to ensure all our clients have been able to adjust accordingly.”

Having a reliable, flexible wastewater system has really paid off for Aerofloat’s clients like All Natural Kitchen.

“It’s been good knowing that we can rely on Aerofloat’s system and service, regardless of the limitations Sydney and Australia have seen during the pandemic,” said Hart.

A system that is easy to run means the already limited operational staff on site at many businesses can focus their attention to the production end of operations.

“Wastewater management can be a simple and efficient part of daily operations if managed correctly. A reliable wastewater treatment solution that meets the individual needs of the business saves on time and money,” said Anderson.

This has been proved time and time again during the extraordinary times of the last eighteen months. With staff restrictions, added safety protocols and financial pressures affecting much of the food and beverage industry, having a reliable, cost-effective system has been vital.

“Aerofloat can scale a solution to meet different needs and budgets,” said Anderson.

And whilst having a reliable system is important, knowing that the support is there after installation is just as essential. Aerofloat prides itself on providing outstanding service and support regardless of the times.

“The support from Aerofloat is impressive — from the customer service team through to the technicians, we know we can rely on ongoing excellence from the entire Aerofloat team,” said Hart.


WASTEWATER TREATMENT SPECIALISTS

Aerofloat (Australia) Pty Ltd
www.aerofloat.com.au



Circumferential piston pump

Engineered for durability and efficiency, the DuraCirc circumferential piston pump features a high-efficiency design, wide performance envelope and low net positive suction head (NPSH) requirement. With flow

rates up to 150 m³/h, the pump is capable of handling operating pressures up to 40 bar. Optional ports make it easy to replace existing pumps from Alfa Laval and other brands, without having to adapt pipework.

Certified to meet EHEDG guidelines and 3-A Sanitary Standards, the pump has a crevice-free design with no dead zones. All product-wetted elastomers are made of FDA-conforming materials with profiled and defined compression, reducing contamination risks and cutting both cleaning time and costs.

Seal positioning with seal faces fully immersed in the pumped media further boosts cleaning efficiency. Heavy-duty bearings support rigid shafts located in a solid stainless steel gear case, which reduces shaft movement, minimising pump-head contact and therefore the risk of media contamination. Additionally, the all-stainless steel construction, suitable for hygienic washdown, results in a clean environment.

Pump options make the product adaptable, increasing application scope. Available options include a wide range of sealing alternatives, an aseptic model, a heating/cooling jacket, horizontal and vertical mounting, and a rectangular inlet for high-viscosity products.

Alfa Laval Pty Ltd

www.alfalaval.com.au

Glass keyboard

GETT Asia's CK5 glass keyboard is a capacitive desktop keyboard with a glass surface.

The keyboard is washable, rugged, splash-proof and provides high resistance against chemicals. In addition, it has a compact layout and comes with a rear-side VESA mounting option.

Designed to ensure that hygiene is maintained, the keyboard has a completely flat Gorilla Glass surface, which allows it to be washable

and easy to disinfect. There is also a key lock that disables the keyboard before cleaning.

Other features include: a compact keyboard layout; an extra-large touchpad; and EMC compliance with EN 60601-1-2 Edition 4.

**Backplane Systems
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www.backplane.com.au



Anemometer, thermo-hygrometer and VTA probes

Dwyer Instruments' range of probes uses a Bluetooth Low Energy (BLE) signal for easy connection and low power consumption. These wireless probes can take measurements up to 15 m away from the UHH6 or compatible smart handheld device.

The Model AP3 Wireless Thermo-Anemometer Probe measures air velocity, airflow and temperature when combined with a compatible smart handheld device. Markings on the probe allow users to know the insertion depth to obtain better accuracy when traversing the duct.

The Model RP3 Wireless Thermo-Hygrometer Probe measures relative humidity, temperature, dewpoint and wet bulb temperatures when combined with a compatible smart handheld device. Factory calibrated replacement humidity sensors can plug directly into the probe without requiring additional calibration.

The Model VP3 Wireless 100 mm Vane Thermo-Anemometer Probe measures air velocity, airflow, humidity and temperature when combined with a compatible smart handheld device. By having a larger diameter, the rotating vane can measure velocities down to 0.25 m/s. An arrow is moulded into the vane housing to depict the flow direction.

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CASE STUDY

Water production line using lightweight bottle



Sidel has installed a complete water line for a bottled water producer in Iraq. The line has been designed with a light weighted and stable PET bottle, which weighs only 10.5 g for the 500 mL bottle format.

Established in 2007, the bottler — Durrat Al Khaleej — is adapting production technology to not only adhere to national and international regulations and standards, but also to stay at the forefront of innovation and sustainability. It also has a laboratory that systematically checks the water produced to ensure it meets stringent standards in Iraq.

Sidel worked together with the bottler to optimise both the bottle design as well as line performance.

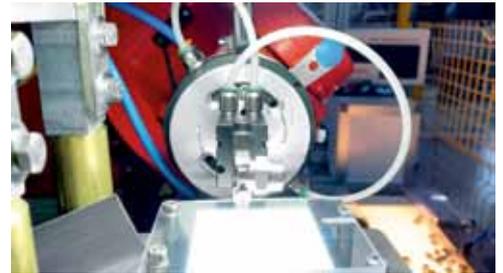
The lightweight PET bottle in the 500 mL bottle format has been designed to maintain a premium look. It weighs just 10.5 g but still has high stability.

The complete water line has a speed of 24,000 bottles per hour (bph) for 500 mL.

Installed on a greenfield project site in Iraq, the solution does not require an air conveyer and has helped the bottler save water on bottle cleaning. The installation and commissioning was successful, achieving 98.1% line efficiency during the customer acceptance validation (CAV).

The first sellable bottle was launched in December 2020.

Sidel Oceania Pty Ltd
www.sidel.com



Quality-checked spray nozzles

The engineering team at PNR Italy has designed and built its own QA testing robots, which are used to ensure the quality and operational accuracy of every nozzle PNR produces.

For diameter testing, a robot picks up each nozzle on the conveyor belt, then orientates it so a video camera can check it. Using the robot, PNR Italy can check 720 nozzles/h.

The process is used for both its regular nozzle production line as well as its custom-designed nozzles.

The PNR production plant also has specialised robotic testing for nozzle performance. These water tests can check droplet size, flow rates, spray angle and other important quality assurance attributes at speeds of up to 3000 nozzles/day. The PNR robot can also conduct air testing and check component labelling compliance.

All tests conducted by PNR include detailed reports which provide a range of statistics such as upper and lower pressure tolerances and flow rates.

The attention to detail during production is designed to ensure quality manufacturing of PNR Italy spray nozzles across critical industries.

Tecpro Australia is the exclusive distributor of the products in Australia and New Zealand.

Tecpro Australia
www.tecpro.com.au

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Würth Elektronik's WE-SHC series shielding cabinets prevent EMI radiation from PCB.

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FLUID CONTROL SYSTEMS

CASE STUDY

3D printing model for Aussie red meat processors

The Australian Meat Processor Corporation (AMPC), together with Markforged and Konica Minolta, is working to establish an industry-owned additive manufacturing (3D printing) service model to help red meat processors across Australia.

Additive manufacturing, also known as 3D printing, has been around for about a decade; however, new uses for the technology are constantly being discovered. This led AMPC to investigate its potential in meat processing facilities.

In a high-volume environment like a processing plant, parts such as bolts and rollers can wear or break. As in any industry, time is money, and if a part fails, the result is lost productivity and expensive downtime until the part is sourced and replaced. With 3D printing, the industry can benefit from part replacement, creation and refinement.

Chris Taylor, CEO, Australian Meat Processor Corporation, said, "Meat processors rely on a multitude of equipment, with multiple components. Even a small component failure can be a costly exercise. The ability to simply print a replacement part could reduce downtime and minimise the need to wait for parts, reducing the chance of supply being at risk."

Matthew Hunter, Innovation Product Marketing Manager, Konica Minolta, said, "The need for sovereign capability for the Australian supply chain coupled with Australian Government support for local food and beverage manufacturing has resulted in organisations looking to adopt innovative practices. Konica Minolta Australia is proud to partner with AMPC in getting this world-first capability off the ground."

Richard Elving, Director of Sales Asia-Pacific, Markforged, said, "We are very excited about bringing Markforged's Digital Forge to AMPC and AMPC's members to support maintenance, repair and operation needs. Supply chain issues can be costly and time-sensitive, and with these tools in place, AMPC will provide a competitive advantage to its members that enables processing facilities to react quickly to solve problems right on the manufacturing floor."

The collaboration involves a three-year, multifaceted program so that these benefits can be realised at meat processing plants across Australia. As part of the program, a metal printing 3D industrial

unit (metal X system) will be set-up at Konica Minolta's Sydney location dedicated to red meat processing part manufacturing. Plastic prototypes made at each processing location can be sent to this hub to be made out of stainless steel and other metals in as few as 24 hours. A red meat 3D parts database library will ensure all parts are quality controlled.

Hunter said, "When it comes to meat processing, there are a number of challenges for equipment maintenance. This includes the use of old equipment with limited spare part availability and the need to produce custom parts. 3D printing helps address these challenges. Through the database, AMPC's member organisations will have access to intellectual property to expedite and streamline their repairs processes."

With the ability to rapid prototype with 3D printing and produce one-off 3D parts, meat processors will also be able to modify equipment and/or equipment components to suit their own specific needs by making changes to tooling, fixtures, brackets and actuators. Currently many of these modifications, customisations and consolidations simply cannot be done.

Taylor said, "The processing sector is part of an ecosystem that performs best when all parts are optimised. Although established and dedicated for Australian red meat processors, AMPC will make the 3D printing hub available for other Australian food, agriculture and manufacturing sectors to evaluate their needs and opportunities for 3D printing within their supply chains."

*Konica Minolta Business Solutions Australia Pty Ltd
www.konicaminolta.com.au*



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Wells Hygiene partners with Meritech USA

COVID-19 has really placed the focus on the importance of hand hygiene. 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. This has not really changed for many years.

Clean hands have always relied on people taking appropriate care and time, to ensure a compliant outcome. Relying on all team members in a food production facility to clean their hands to the same consistent and high standard is difficult to achieve.

In reality, some will wash for different lengths of time, use different amounts of soap and more or less hot water. Also, there is great variation in how they use mechanical action (scrub) to clean things like creases, nails and other parts of the hands. Additionally, inconsistent hand washing practices have also led us to an over reliance on alcohol-based hand sanitisers as a second line of defence.

Meritech USA has developed and specialises in automated hand washing systems that have taken the subjective nature out of washing hands, with its range of Cleantech Automated Handwashing Stations. This technology revolutionises hand washing, reducing the time it takes, uses up to 70% less water, with compliance tracking and ensures 100% consistent wash outcomes, with 99.9% of harmful pathogens removed, including COVID-19.

The Cleantech hand wash stations are FDA accepted and fully validated. White papers on this are available.

Wells Hygiene in Australia and New Zealand have identified this need amongst food and beverage processing companies and have recently established a distribution partnership with Meritech USA for the NZ, Australian and Pacific Islands regions.

For further information in relation to these revolutionary systems, contact: Wells in Australia on +61 3 9699 8999 or email info@wrdwells.com; or in New Zealand on +64 9263 9332 or email sales@wellshygiene.co.nz; or visit the Wells web site at www.wrdwells.com/handhygiene.

WR&D Wells Pty Ltd
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High-pressure homogenisers

The HLI series high-pressure homogenisers from HST are suitable for the production of UHT dairy products and desserts as well as milk-based drinks, vegan beverages, and fruit juices. The series has been added to complement the HL range, with the 'I' in HLI standing for 'integrated' and underscoring the design changes implemented.

The 55 to 90 kW systems can process up to 13,000 L/h at 200 bar. Three models are available: HLI55, HLI75, and HLI90,

all in the same configurations as the HL series and including an option that fulfils the European Union's ATEX (Equipment for potentially explosive atmospheres) Directives. Additional models for the lower output range to 45 kW are currently in development. The systems in the new series each consist of a three-piston high-pressure pump with a homogeniser valve at the outlet.

A compactly dimensioned drive design eliminates the need for additional units or coolants, which makes for a reduction in operating costs for media and electrical power during production.

The homogeniser valve on the HLI series can be matched to the required physical stability of UHT dairy products, vegan beverages, desserts and fruit drinks.

Optimised flow conditions make it possible to obtain the same product quality at a lower homogenising pressure. Of course, all areas that come into contact with the product are made in accordance with the latest hygiene requirements.

The HLI series can be configured for either aseptic or non-aseptic processing. The aseptic models of HST homogenisers use technology that entails a series of sterile barriers and can be equipped with high-grade temperature and flow metering capabilities on request.

Krones (Thailand) Co Ltd

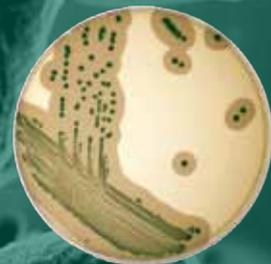
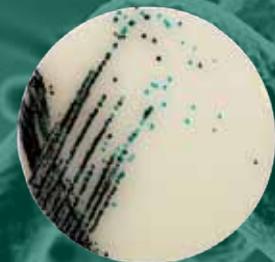
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NEOGEN® has developed an innovative workflow solution for the detection of pathogens in food and environmental samples, using just one enrichment broth and one agar plate. Ideal for laboratories looking to reduce time to result whilst still maintaining classical microbiology, with results in as little as 48 hours.

Validated according to ISO 16140-6 for Bruker MALDI-ToF confirmation.



For more information contact



FoodSafetyAU@neogen.com

Water management service

The Ecolab Water Flow Intelligence digital service uses IoT and predictive analytics to help improve sustainability, ensure product quality, minimise water risk and optimise its use. It can help to provide industry with real-time visibility of water usage at the enterprise, site and asset levels.

The service is designed to enable food and beverage producers to identify opportunities that help improve water management across their operations, deliver on sustainability goals and reduce operational costs by combining smart water meters and sensors with advanced water flow measurement and monitoring, asset performance insights and machine learning.

It is powered by ECOLAB3D, a secure, cloud-based digital platform that translates data from multiple sources into actionable insights.

Manual data collection and analysis to track water use is often tedious, resource-intensive and difficult to execute consistently across sites. Through the data and insights provided by Water Flow Intelligence, developed by Nalco Water (Ecolab's water management business), users can pinpoint on a user-friendly dashboard where water is being consumed across the connected assets and processes within their facilities, set enterprise-wide benchmarks and strategically target improvement efforts to help maximise water savings.

Water Flow Intelligence is currently available to industrial businesses in North America and Europe, with expansion to Australia and New Zealand by the end of 2021.

Ecolab Pty Ltd

www.ecolab.com



Updated range of managed switches

Available from Control Logic is the BOBCAT extended range of managed switches by Hirschmann. The update brings advanced features and security advantages of the HiOS-based BOBCAT range to applications which require a high density of ports.

The previous range was limited to 12 ports maximum but now the range extends to 24 ports of Fast Ethernet, 24 ports of gigabit and the BRS50 has a maximum of 4x 2.5 Gb with 20 Gb ports.

Recent firmware changes to the range have increased the feature set to include full IPv6 management support, 802.1AS time sync, IEEE1588v2 time sync, monitoring via popular industrial protocols with future support to include OPC UA in a future release.

The switches also enable real-time communication using time-sensitive networking (TSN) and are a solution for classic automation applications that require real-time communication, advanced security, low latency and the simultaneous synchronisation of data and information to control operations.

Control Logic Pty Ltd

www.controllogic.com.au

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Tray sealing machines for skin packs

Proseal's range of tray sealing machines means the company can help businesses of any size maximise the opportunities offered by the current popularity of skin packs.

Skin packs feature a special film that seals to all surfaces of a tray — rim, sidewalls and base — to tightly cover the entire contents. As well as providing on-shelf presentation, they can also help to extend the shelf life of many products. For example, Proseal said the technology can more than double the shelf life of red meat.

The packs were first adopted primarily for fish products but are now being increasingly used for other types of foods such as ready-to-cook meals, game, meat and sausage products, and mini joints.

The variety of Proseal tray sealers — from compact semi-automatic models suitable for start-up businesses or new product development to fully automated, high-capacity, inline machines that can seal over 240 packs/min — means the company can tailor a solution to the precise requirements of each customer.

As well as the ability to handle a wide variety of sealing formats, with options added or removed as required, any new features developed to meet changing market requirements can also be retrofitted to existing models.

Proseal Australia

www.prosealaustralia.com

Web-based F&B distribution software

EasyVend is an Australian web-based food & beverage distribution software that has had its handheld mobile module updated to simplify the truck delivery process. The software is suitable for distributors and suppliers of dairy, bread and beverage products.

Available to download on most iOS and Android devices, the mobile application allows users to enter orders, receive instant proof of delivery, add customer payments, add new customers and modify standard orders.

The mobile feature is available through the EasyVend software, which also includes receipting, invoicing, standard orders, dockets, inventory control and much more.

Jeal Computer Services

www.jeal.com.au



Vacuum lifting technology

Timmer's expanded vacuum lifting portfolio is designed to be more ergonomic and quieter in operation than its predecessors.

The latest product line, called the timLIFT range, features three different models: quickLIFT (one-hand operation up to 50 kg), lightLIFT (two-hand operation up to 50 kg) and heavyLIFT (two-hand operation up to 270 kg).

The models enable the user to move a diverse range of goods.

Timmer GmbH

www.timmer.de/en/home

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Results of latest Australian Total Diet Study released

Food Standards Australia New Zealand (FSANZ) has released the results from its 26th Australian Total Diet Study (ATDS) which looked at levels of persistent organic pollutants including dioxins, dioxin-like compounds and polychlorinated biphenyls (PCBs) in food.

Chief Executive Officer Mark Booth said the results are good news for Australians, showing exposure to these chemicals through food is low and presents no safety concerns.

“The 26th ATDS provides evidence to assure consumers they can continue to be confident that food sold in Australia is safe to eat.

“We looked at 33 foods typical of the Australian diet, taking 600 samples across all Australian states and territories.

“Our results show that while the selected chemicals are present in the environment, the levels are low and there are no food safety concerns for Australian consumers.

“The levels of these chemicals were generally lower than or comparable to those found in a previous Australian study (2004) and overseas.

“Our 26th ATDS marks a significant milestone for the study — it’s been 50 years since the first survey was conducted in 1970,” Booth said.

Initially run by the National Health and Medical Research Council, FSANZ took carriage of the study in 2001.

Since then the ATDS has continued to evolve, expanding from a traditional focus on pesticide residues and contaminants to take in a wider range of food chemicals including additives, nutrients and food packaging chemicals.

The full report can be downloaded here: <https://www.foodstandards.gov.au/publications/Pages/26th-Australian-Total-Diet-Study.aspx>.



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Flowmeter range

Endress+Hauser's Proline 10 range of Promag and Promass flowmeters covers a wide range of basic applications in all kinds of industries.

The Promag electromagnetic flowmeters are suitable for measuring the flows of conductive liquids, as well as for volume measurement of water and corrosive liquids (Promag W/H/D 10) and chemically aggressive fluids (Promag P 10).

The flowmeters meet the demands of basic applications in the water and wastewater, food and beverages, mining, minerals and metals, chemicals, power and energy, life sciences, utility, and other industries. They can be used, for example, for measuring raw water, cooling water, process water or wastewater. Typical applications include volume measurement, consumption measurement, process monitoring, pump control and dosing measurement.

Promass K 10 Coriolis flowmeters measure the mass flow of both liquids and gases in utilities, with minimal operating costs to maintain the flowmeter. The device can be used for filling and dosing tasks, process monitoring, pump control, consumption measurements, and much more.

In the food and beverage industry, the device measures the admixture quantity of animal fats or carbon dioxide during beverage carbonisation.

Endress+Hauser Australia Pty Ltd

www.au.endress.com



F&B control and visualisation system

Originally used as a control and visualisation system for breweries, the Botec process control system has

been expanded to meet the needs of other food and beverage makers.

One aspect targeted in the upgrade was to optimise interfaces to higher-order systems, like production planning or ERP. Links of this kind make for a greater degree of automation while simultaneously reducing operator interventions and increasing efficiency levels.

The Engineering Buddy, a tool that facilitates engineering based on Siemens TIA control systems, enables Botec to be integrated into the TIA portal. It also supports Microsoft Active Directory, which means it can also be integrated into the customer's central IT landscape.

The latest release gives its user more independence in selecting terminals: the switch to vector graphics, with automatic scaling of process images, means that users will no longer be tied to a specific screen size. Instead, the user can choose any of the formats and resolutions commonly encountered.

It is possible for existing users to benefit from the features of the latest Botec version through an update or, with older systems, by upgrading to Botec F1.

Krones (Thailand) Co Ltd

www.krones.co.th



Automated torque control for decenter centrifuges

GEA's Active Torque Control (ATC) feature for CF decenter centrifuges can detect the stick-slip effect and adjust the decenter centrifuges automatically.

Designed to add intelligence to the decenter system, the ATC feature allows calibration and adjustment during operation for an optimal working point.

It features on-the-fly, automated correction of the differential speed by means of active torque control to ensure an optimal working point while avoiding stick-slip. This enables maximum solid yield, minimum energy costs for thermal drying and lower risk of system damage due to stick-slip.

The ATC automated monitoring and control system is available for the CF decenter series machines. There is also an option to retrofit existing CF decenterers with ATC.

GEA Group

www.geagroup.com.au

CASE STUDY

How low can temperatures go when cabling for refrigeration?

Refrigeration systems supplier L&R Kältetechnik (L&R) was asked by the German manufacturer of a COVID-19 vaccine, Biontech, to assist it with bulk transportation of millions of doses. So the company employed LAPP cables to withstand the harsh conditions.

The vaccine had to be stored at -70°C and only tolerates standard refrigerators for a short time before being administered. Biontech supplies the vaccine in boxes that act like large Thermos flasks, keeping the content cool for several days.

L&R decided to use a conventional shipping container with a length of 40 feet to install a refrigeration chamber.

The main chamber can drop to a temperature of -80°C and has a capacity of an estimated 3.5 million vaccine

doses. It also features a preliminary chamber at -20°C, which acts as a low-temperature airlock.

For such low temperatures, transport companies normally have to use dozens of laboratory deep-freeze cabinets, which are not only expensive, but require significantly more power and space, claimed LAPP.

Hot and cold

The cables used to make the container application possible had to withstand extreme temperatures, both cold and hot. For example, the refrigerant flows through the evaporator at a temperature of -90°C.

To prevent the electric motors from freezing, the bearings are heated. The two compressors have a power of 20 kW/h

each, and currents of 40 amps flow through the ÖLFLEX cabling.

Directly on the diesel generator, the temperature can rise to more than 100°C while it can reach as low as -100°C in the icy storage containers. In both cases, LAPP's ÖLFLEX cabling is used, ensuring the shipping container's ability to store the vital vaccines.

"In our quotations we not only specify the properties of the cables but also that they are ÖLFLEX cables from LAPP and which type. That really makes a difference for our customers," said Christoph Wiemer, Head of Special Systems Sales at L&R Kältetechnik.

LAPP Australia Pty Ltd
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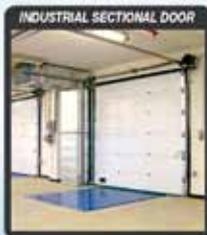
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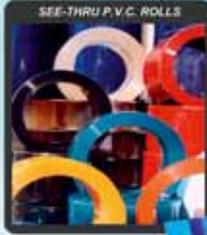
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Flooring solutions

A guide for the food and beverage manufacturing industry



The food and beverage manufacturing industry of Australia is a high-standard, fast-paced industry with little room for error. Downtime is scheduled months in advance, and adherence to shutdown periods is vital. The last thing a maintenance manager wants to hear is that a maintenance project will need to be completed again just three months after completion due to non-compliance.

Understanding available flooring solutions for individual areas in a food or beverage manufacturing facility can significantly boost the success of a project for the maintenance manager.

Let's first cover off on the three main challenges that need to be considered prior to selecting a flooring solution.

1. Constant wet conditions

Food and beverage manufacturing facility floors are under constant stress due to the water used in frequent washdowns, cleaning routines and liquids from the food production. If the incorrect flooring solution has been installed, it creates a couple of issues: slip hazards, pooling of liquids (if falls have been done incorrectly) and corrosion of the floor.

2. Temperature extremes

The majority of food manufacturing production and cleaning processes involves heat, with the storage of goods involving tem-

peratures below zero. With two extreme temperatures, if the incorrect flooring solution has been applied, the concrete will gradually crack under the pressure and expose bare substrate.

3. Corrosion

With the high amount of acids and alkalis involved in cleaning routines, as well as the food production process, corrosion can occur if the incorrect flooring solution has been applied.

Now we've briefly covered off on the challenges, we'll review the options. Unfortunately, the ANZ Food Standards Code gives us little guidance as to the ideal flooring solutions. At Allied Finishes, we can only provide advice based on flooring solutions that comply with the following:

As set out in the ANZ Food Standards Code Standard 3.2.3, flooring must be designed and constructed in such a way that is appropriate for the activities conducted on the food premises. More specifically, floors must:

- be able to be effectively cleaned;
- be unable to absorb grease, food particles or water;
- be laid so there is no ponding of water; and
- to the extent that is practicable, be unable to provide harbourage for pests.



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From this, we have outlined below three flooring solutions that comply with this, as well as the areas where each flooring solution should be implemented.

1. Ceramic or quarry tiles

Ceramic or quarry tiles are highly durable and excellent for high-traffic loads. They have good impact resistance and have a long life. They are, however, relatively expensive and require a long duration for installation. The permeable grout also makes cleaning and sanitising difficult, so regular thorough cleaning routines need to be in place to avoid microbe harbourage, and dirt and grease retiring there.

2. Epoxy resin

Epoxy resins have a fast installation time and are durable. High solid epoxies provide good protection against acids and alkalis, but not strong protection against lactic acid, which is essential in dairy production facilities. Epoxies also don't handle cold or thermal shock conditions very well; however, they do bond well to prepared concrete.

3. Polyurethane cements

Polyurethane cements have a long service life. They have good resistance to thermal cycling and excellent chemical resistance,

especially to lactic acid. They are typically low odour, seamless and easy to clean. Polyurethane cements have greater resilience and elasticity than epoxy resins, making them more resistant to scratching and marring. The elasticity makes this type of floor suitable for freezers where storage temperatures may reach -30°C.

While polyurethane cement systems appear to be the best flooring solution, the other two solutions are suitable in lower-pressure areas of the food manufacturing facility. Please note due to the description of tiles above, Allied Finishes doesn't offer this product.

Areas in a food factory have been outlined below, with Allied Finishes' recommendation of flooring solution.

Ingredients storage

Ingredients storage rooms are typically dry areas with minimal foot traffic but some forklift traffic. Understanding this, the floor needs to be durable, but without frequent washdowns as in the production areas, it isn't under as much stress. Allied Finishes recommends a polyurethane cement flooring solution in a light non-slip for this area. In particular, its SteriFloor Schützend solution is suitable for ingredients storage areas.

Production areas

Production areas present a range of challenges to be considered when selecting a flooring solution. Constant wet conditions, temperature extremes, corrosion with acids and alkalis, and high-pressure hosing put the floor under a lot of pressure. A polyurethane cement system is ideal for this type of area. Allied Finishes recommends its SteriFloor Stärke solution — a hard-wearing food-grade flooring solution available for food and beverage manufacturing facilities.

High-care areas

Many food manufacturing facilities have high-care areas, where maximum hygiene is required. Typically traffic is minimal, but cleaning is frequent. Allied Finishes recommends an epoxy solution, in a stipple finish — its SteriFloor Keimfrei solution is suitable for high-care areas.

Packing halls

With the constant foot and forklift traffic in packing halls, the flooring solution needs to be durable. Standing up against water, acids and alkalis is not a challenge faced in this area; however, due to the durability required, Allied Finishes recommends a polyurethane cement system. In particular, it recommends its SteriFloor Beschützen solution.

Coolrooms/freezers

A change in flooring temperature can cause many flooring solutions to crack, exposing the substrate. Polyurethane cement systems are not as affected by this change; hence, Allied Finishes recommends this solution in a higher build. Its SteriFloor Stärke solution is suitable for coolrooms, as it would not crack with the changing floor temperature.

Allied Finishes
www.alliedfinishes.com



Bottle washers with smart drive system

Krones' Lavatec series bottle washers feature an updated smart drive system.

The drive system improves the bottle washer's energy efficiency and total cost of ownership (TCO) using 20% less electrical power than its predecessor while maintenance cycles can be extended by around 20%.

Its gentle bottle handling is enabled by controlled conveyors at the infeed putting less pressure on the bottles. It also features torque monitoring — allowing the infeed curve to be specifically set to match the bottles' shape and weight.

Independent control of the finger shaft and bottle transfer guides allow for a user-friendly experience while empty bottles are tipped into position before being picked up by the fingers at the infeed to reduce noise.

Krones (Thailand) Co Ltd

www.krones.co.th

Hygienic connectivity interface

The Han F+B hygienic connectivity interface is suitable for the food and beverage industry.

With Han F+B, HARTING has created a range of connectors that are specially designed for the requirements of the food industry. Hygiene and safety are particularly important in food processing. Machines and equipment must be designed so that they are easy to clean; dirt pockets must be avoided.

Smooth surfaces make it harder for bacteria to accumulate. The hoods, housings and seals are robust and protect the internal contacts against hose water and aggressive cleaning agents, which are certified by Ecolab and have FDA 21 approvals. The water jet from high-pressure cleaners cannot penetrate the hoods/housings when closed.

Other features and benefits include: easy-to-clean design especially for the spray zone; reliable connections, even with daily cleaning; protection against water jets and aggressive cleaning agents; reduced downtimes and outages; quicker replacement of defective components and efficient configuration when changing products; and simple and quick installation of machines and facilities.

HARTING Pty Ltd

www.harting.com.au

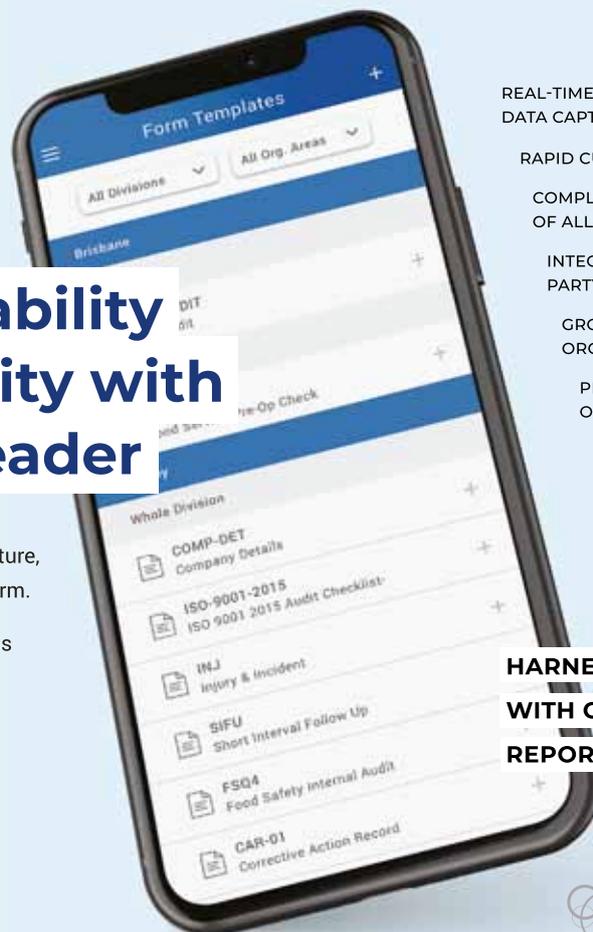


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Software-centric automation system

Schneider Electric has released version 21.1 of EcoStruxure Automation Expert, its software-centric universal automation system. The technology is suitable for adoption by, for example, consumer-packaged goods, pharmaceutical and logistics enterprises.

By separating the hardware and software life cycles, the system enables automation applications to be built using asset-centric, portable software components, independent of the underlying hardware infrastructure. This software-centric approach is designed to deliver cost and performance gains and allow engineers to innovate by automating low-value work and eliminating task duplication across tools.

For example, the system has been used in one application to simplify the integration between operational technology (OT) and information technology (IT) to provide fast time to market and flexibility for food and beverage and pharmaceuticals industry applications.

Because the software is decoupled from the hardware, modifying the conveying line to adapt as flow requirements change can be easier and more cost-effective. Identifying the root cause of failure and troubleshooting is claimed to be four times faster using the automation system, with 45% less products on the error line and throughput increased by 5.3%.

Among other advancements, EcoStruxure Automation Expert V21.1 includes enhanced cybersecurity, diagnostics, discovery and commissioning features; and expanded libraries and language support.

In addition, improved integration with AVEVA System Platform allows users to take advantage of AVEVA's software for supervisory, enterprise SCADA, MES and IIoT applications with minimal engineering overhead.

Industrial developers can create their own software components and solutions based on the IEC61499 standard, which can easily interoperate with EcoStruxure Automation Expert.

Schneider Electric
www.se.com/au



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Industrial wet/dry vacuum

EXAIR's EasySwitch HEPA Wet-Dry Vac simplifies the filter change process when switching from vacuuming a dry material to a liquid or vice versa.

Using minimal compressed air, the EasySwitch is a pneumatic vacuum that is designed for many applications, including wet, dry, light and heavy. This vacuum uses a HEPA certified filter when vacuuming dry material.

The tool-less conversion to vacuuming liquids is done by releasing one latch, removing the filter element and securing the latch. Simply reinstall the filter into the lid assembly for dry materials. It is designed to handle industrial clean-up jobs and it rests on any 205 L drum.

Compressed Air Australia Pty Ltd
www.caasafety.com.au

PoE flowmeters

ABB has incorporated power supply through Ethernet connectivity on board its electromagnetic flowmeter ProcessMaster and mass flowmeter CoriolisMaster.

Power over Ethernet (PoE) omits the need for a separate DC power infrastructure, providing power and communications via the same cable. This brings new agility as flowmeters can be installed wherever needed. In addition, ABB 4-wire Ethernet combines classic outputs with future communication protocols. Offering a modular design allows the combination of both worlds and helps ensure that devices are futureproof, increasing the longevity of the flowmeters.

Flowmeters with Ethernet connectivity increase simplicity, flexibility and reliability for operations in process automation, while enhancing real-time visibility of data. Previously hidden data in field devices, such as measurement values on density, conductivity or concentration of the medium, can be made available. This in turn will help users identify redundant measurement points in their plants to achieve savings along the way.

Combining 4–20 mA or digital outputs with new 1- or 2-port Ethernet helps makes classic instrumentation futureproof, with speeds of up to 100 m/s. The flowmeters use various Ethernet-based communication protocols, such as simple Modbus TCP or EtherNet/IP. This prepares them for IT/OT convergence, cloud connectivity and the requirements needed for secure and encrypted communication in the near future.

Ethernet connectivity for the ProcessMaster electromagnetic flowmeter is currently available in North America, and will be released globally later in 2021.

ABB Australia Pty Ltd
www.abbaustralia.com.au



Filtration solutions for the industrial segment

Metso Outotec is introducing its range of filtration solutions for the industrial segment, covering, for example, chemical processing, industrial minerals, rubber and plastic, food and pharmaceutical, as well as different types of bioprocess industries.

Metso Outotec's portfolio for the industrial segment includes a range of models for various capacities, all designed for easy maintenance

and consistent results under varying process conditions. The Larox brand, of which Metso Outotec is the sole owner, is used for selected filters and related services.

As a core feature, the filtration solutions feature a sustainable design to improve environmental performance through energy, emissions and water efficiency. They also comply with the relevant safety standards, are easy to operate and maintain, and are equipped with automated features to support advanced process optimisation and remote support.

Metso Outotec
www.mogroup.com

CASE STUDY

Customised separator increases ghee production by 30%

India produces around 5 million metric tonnes of ghee every year and it is claimed to be the second-largest, milk-based product consumed in India after curd.

GEA has now created a bespoke ghee processing separator that has improved production for Indian milk union Amul Dairy.

The serum separator has reduced fat losses by 85% and increased ghee production by 30% with no additional investment in the already existing plant.

“GEA’s custom-designed centrifuge has transformed our Ghee production,” said Amit Vyas, Managing Director of Amul Dairy.

“After installing the GEA separator, we were able to dramatically reduce our fat losses — from 2% down to 0.3% in the serum part — while increasing ghee production capacity by almost 30%. We achieved our ROI in less than a year,

with the added benefit of improved safety, hygiene and energy efficiency.”

The GEA team worked closely with Amul Dairy to develop a bespoke solution, taking time to understand the nature of the process.

Thomas Veer, Product Manager Sales, Separation and Flow Technologies Division at GEA, said: “Amul’s previous ghee production unit had a conventional pre-stratification set-up which resulted in high-fat losses on the order of 2%. With thousands of litres of butter melted every day, the 2% fat loss significantly impacted their bottom line. The traditional set-up also posed operational challenges and was problematic with regard to safety, hygiene and energy consumption.”

With a capacity of 3000 L/h, the new separator allows Amul to bypass the conventional pre-stratification set-up and scale up its production to generate an additional volume of six metric tons per

day with no additional equipment or investment in the plant.

Amul Dairy’s new installation has also reduced the load on its effluent treatment plant (ETP).

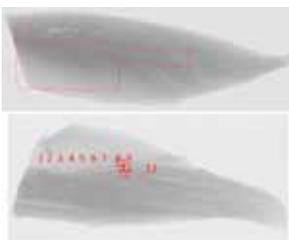
GEA Australia
www.gea.com



X-RAY BONE DETECTION

The **XAVIS FSCAN 4350** is the latest x-ray from the Xavis Group for Chicken and Fish Bone detection.

The Fscan software utilizes a deep-learning algorithm to maximize the detection of bones. The machine is easy to use and rated for the most rigorous environments. The IP69K protection coupled with 316 grade stainless steel construction will ensure your investment in the 4350 will be realized for many years.



Target products

- Fish, chicken, turkey, duck meat and goose meat
- Fresh and cooked
- Fillets, butterflies, tenders, thigh/leg, trim, nuggets, mixed and ground poultry meat
- Wish bones, fan bones, rib bones etc.
- Maximum product height 70 mm

Expected inspection results

≤ 99% of accuracy of 2.0 mm of bone in raw chicken breast

Other contaminant detection

1.0 mm metal, 2.0 mm stone, 2.0 mm glass

Protection

IP66 with IP69K optional

Combination Systems

Rejection system

Checkweigher

Grading system

For more information, please contact our office on
1300 989 079 or email: sales@ofiinspection.com.au

NEWS



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Program to ship fresh hops globally developed

Fresh hop craft beer has been growing in popularity across the US. Brewed with whole wet cones within 36 hours of harvest, the beer is designed to represent hops in their most natural form. However, with the high perishability of an unprocessed ingredient, fresh hops are difficult to access for brewers further from the farms.

Yakima Chief Hops (YCH) has now launched a frozen fresh hops product, which could help brewers access fresh hops and bring fresh hop craft beer to the world.

In partnership with Wyckoff Farms, YCH's Frozen Fresh Hops program is designed to ship raw, un-kilned, flash-frozen whole cone hops produced in a BRC-certified food processing facility.

Unlike traditional freezing, flash freezing is designed to retain the delicate nuances of un-kilned hops by protecting lupulin gland integrity, preserving fresh hops from both a physical and aromatic perspective.

YCH claims this results in a product that delivers better storability and logistical flexibility.

The Frozen Fresh Hops have sub-freezing shipping and storage requirements.



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Sit-down reach truck range

MLA Holdings has released the RBF14-16-20CA series sit-down reach truck range, which adds to the range of warehouse products from Mitsubishi.

Available in three models, each is powered by a 48 V traction battery. The 1.4, 1.6 and 2.0 ton models all use AC motor technology for greater power efficiency and lift heights of up to 10.5 m.

Features include safety, good control system and smooth operation.

The Operation Interlock System deactivates travelling when the operator is not seated. Furthermore, a Neutral Safety feature prevents sudden movement should the accelerator or hydraulics be accidentally activated, while a sensitive lift speed control automatically slows lifting and steering when truck is above a certain speed. Direction control, horn and emergency stop button are located ergonomically on the armrest console.

Additional safety features include: colour cameras; blue safety lights; red halo perimeter lights; laser pointer; drive-in racking; side shift with fork positioning; single point battery watering system or maintenance-free batteries; speed limiting; and load weight indicators or digital weight scales.

An optimised operator experience is ensured by the SICOS-AC control system that integrates the hydraulics, travelling and steering functions. Also integrated is a self-diagnostic function that constantly monitors for malfunctions. Any faults discovered are communicated via diagnostic codes making it easy to identify the problem and rectify.

AC motor technology delivers a smooth, powerful drive and low maintenance costs. A regeneration function charges power back to the battery through plugging, coasting and braking to ensure longer operating hours from one charge.

Integral side shift is a standard feature, while steer by wire 360 degrees steering means there is no need for switch back, to ensure effortless steering.

MLA Holdings Pty Ltd

www.mlaholdings.com.au



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achieves results
worth raising a
beer to.**

When consolidating its multiple Brisbane sites into the new Heathwood DC, Asahi made the decision to upgrade from previously very labour-intensive operations to a fully automated warehouse solution, eliminating manual handling of pallets.

With the introduction of a satellite ASRS solution, Dematic helped Asahi maximise storage capacity, reduce operating costs, and improve efficiency and productivity to better meet the needs of its customers.

Read more and watch the video at Dematic.com/asahi

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 **DEMATIC**



Vibratory conveyors with monobeam construction

Key Technology introduces its Marathon vibratory conveyors with monobeam construction. Featuring a narrow frame that's less than half the surface area of traditional Marathon frames, monobeam shakers can provide better access to the conveyor bed and fewer parts to clean.

Designed for processors that require a high degree of equipment hygiene and/or a small footprint, the conveyor is suitable for a wide range of bulk food applications — from raw receiving to packaging, including product collection, transfer and distribution.

Unlike a traditional shaker, which has a frame and spring arms on both sides of the conveyor bed, monobeam conveyors position the frame and spring arms underneath the bed to maximise sanitation while improving operator access and safety.

All Marathon conveyors, including the monobeam models, use natural-frequency vibratory motion to distribute bulk foods long distances on a single unit. The conveyor can replace several shakers in a row, relying on only two independent, frame-mounted drives to improve efficiency and reliability. Additionally, fewer supports to the floor eases cleaning and sanitation. Two foot-mount, self-synchronising motors transfer the force of the frame to the bed without mechanical joints to further improve efficiency, reduce maintenance and minimise downtime. Each conveyor is tailored using predictive modelling and Finite Element Analysis to define the product characteristics and deliver good performance.

Available in lengths from 9 to 15 m and widths from 50 to 100 cm, the monobeam conveyor can achieve conveying speeds greater than 15 m/min, depending on the application. The conveyor bed can be tilted to draw product to one side, and flow direction can be controlled with optional side outlet diverters. It can be built with end-mounted drop-out gates, diverters, end-mounted screens and covers when needed.

In addition to the sanitation enhancements from its monobeam construction, the conveyor has a variety of sanitary advantages. Its stainless steel conveyor bed features a standard rotary polish within the product contact zone, which resists bacterial attachment and biofilm formation. Oil-free drives, elastomeric isolators, scalloped flat bars (if requested), internal ground arms and minimal laminations maximise equipment hygiene and help meet rising sanitary standards and regulatory requirements. The monobeam frame is sloped to prevent product and moisture build-up that can harbour bacteria.

Available in four different finishing standards, the conveyor's rotary vibratory drives are available in either stainless steel or food-grade epoxy finishes. The unit is suitable for fruits, vegetables, potato strips, potato chips, nuts, meat, poultry, seafood, dairy products, confections, snacks, cereals, grains, seeds and more.

Key Technology is exclusively distributed by Heat and Control in Australia.

Heat and Control Pty Ltd
www.heatandcontrol.com

Shipping desiccant

The Absorpole from Absortech Groups is a carbon-neutral shipping desiccant.

A 60% reduction in the product's carbon footprint has been achieved through the use of recycled plastics and the removal of dyes to ease the recycling process and reduce production processes. Unavoidable carbon emissions are offset via gold standard projects of sustainable development. The carbon-neutral status of the desiccant has been achieved with no change to its performance and installation.

The desiccant uses calcium chloride to absorb moisture from air, up to 150% of its weight (1.8 L). Calcium chloride at the top of the unit absorbs moisture from the surrounding air. The calcium chloride gradually dissolves into brine and is captured into a collector. Once captured, the moisture will not re-evaporate into the air.

Fully extended, the unit measures 1180 x 116 x 35 mm and weighs 1.5 kg. It is designed to occupy minimal container space sitting within the corrugated recesses of container walls, attached to the container's lashing rings. It is particularly suitable for tightly packed containers that allow at least 5 cm space between cargo and desiccant unit. Rigid casing protects the unit from rupturing.

The unit is suitable for use alongside the transport of agricultural products, textiles and leather products, wood and paper, electronics and machinery.

Protection Experts Australia
www.pro-ex.com.au



Robotic pick-and-place platform

Syntegon RPP is a robotic pick-and-place platform that automates process steps such as handling, feeding and loading. It's modular design allows individual configuration of the robotic cells. It also means the platform is scalable and can be used to automate a diverse range of systems.

The stainless steel robotic cells meet the IP65 protection class. This minimises the risk of contamination for both current and future hygiene requirements in the food industry. It also features a tool-free format designed to allow manufacturers to process different products on the same line and to reduce downtime.

Syntegon Technology Singapore Pte. Ltd
www.syntegon.com



Electric truck for VB beer deliveries in Melbourne

fitting these two Australian icons are taking this major step towards a sustainable future together. This truck will deliver VB and our other beers in a sustainable, safe and efficient way, which makes sound commercial sense.

“Transitioning our deliveries to electric vehicles will help us achieve our ambitious sustainability goals of reducing our net carbon emissions across our entire supply chain by 30% by 2030 and to zero by 2050.”

The VB truck is decked out in VB green and can travel up to 250 km before it needs recharging.

Linfox delivers hundreds of millions of litres of beer annually for Asahi Beverages.

Australia’s domestic freight task has doubled in the past decade and will continue to grow, according to Linfox Executive Chairman Peter Fox.

“To meet this demand, Australia’s road fleet will also grow, and it is essential the fleet does this safely, efficiently and with reduced environmental impact. Together with our customers, we continue our commitment to build sustainable and reliable supply chains for the future.”

Victoria Bitter has announced it will use an electric vehicle (EV) for deliveries across Melbourne. The Volvo FL all-electric truck will be the first of many Linfox electric vehicles that deliver Victoria Bitter.

More than 100,000 cans and stubbies will be transported by the electric truck each week from Asahi Beverages’ distribution centre in Melbourne’s west to bottle shops across the city.

The truck will be powered entirely by 100% offset solar power drawn from Asahi Beverages’ solar farm near Mildura in northern Victoria. The truck is the latest sustainability initiative from VB, which has been brewed with 100% offset solar electricity since last year.

Robert Iervasi, Group CEO of Asahi Beverages, which purchased Carlton & United Breweries last year, said Linfox has delivered VB for more than 50 years. “It’s

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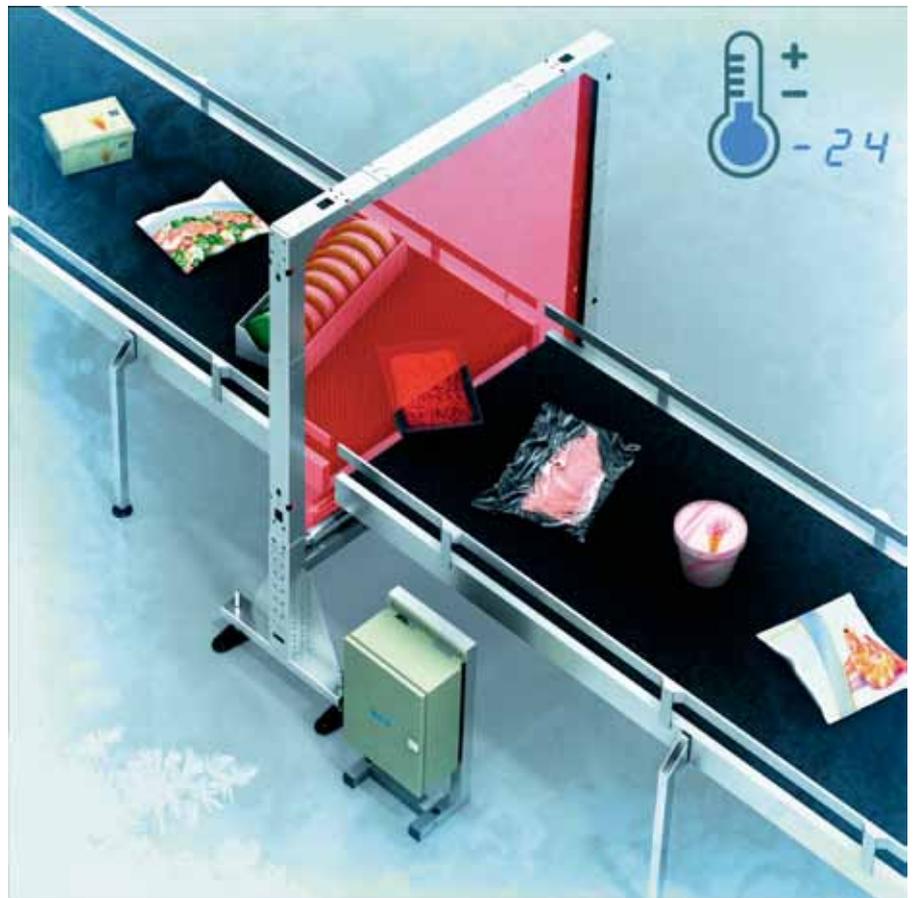
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SICK Track & Trace System —

VML dimensioning with perspective

Reliable object detection is essential whenever automated systems are used for object transport. In the courier, express, parcel and postal (CEP) markets in particular, the daily challenge is to deliver punctually and completely. The prerequisite for this is optimum utilization of warehouse and transport capacities.

The VML track and trace system for volume measurement is ideal for these applications: light grids detect the length, width, height and rotation angle of an object. The obtained profiles are used for immediate calculation of the object dimensions and position determination. The surface properties do not affect performance because the VML reliably measures even semi-transparent and film-wrapped objects and determines the smallest enveloping box. This leads to increased efficiency in the downstream packaging and stock placement process and simplifies invoicing for certified systems. The



determined rotation angle allows dynamic handling by downstream robot systems. The modular design of the VML system makes it compatible with other SICK solutions and allows it to be easily adapted to individual tasks.

Powerful system for all applications

- Reliable object measurement by light grid technology independently of the surface properties
- Easy on-site installation thanks to predefined light grid sizes and adaptable standard steel frame

- Low-maintenance operation because system does not contain any moving parts
- Easy system expansion and integration thanks to MSC800 modular system controller

System integration in the SICK product range

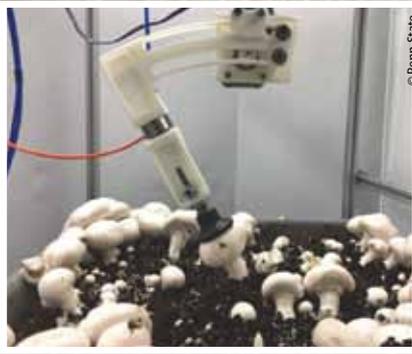
Identification solutions from SICK feature uniform electric and data connectivity, a standard user interface, and a uniform accessory concept. The devices are also compatible and interchangeable with one another. This compatibility allows flexible selection of technology to ensure that future needs are also met.

The VML track and trace system measures objects completely independently of their surface properties and is therefore suitable for a wide range of applications in the area of object dimensioning and position determination. It meets specific requirements for industrial use, e.g. with respect to ambient light immunity and protection classes, and is also available with different connection and protocol variants. The VML system enables efficient packaging, storage and transport of objects across industries.



SICK
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SICK Pty Ltd
www.sick.com.au



The prototype, which is designed to be integrated with a machine vision system, showed that it is capable of both picking mushrooms with a pneumatic system (above) and trimming them.



Mushroom robot

The button mushroom — *Agaricus bisporus* — is an important agricultural commodity. Approximately 404 million kg of button mushrooms valued at \$1.13 billion were consumed in the US within one year (2017–18).

Because 91% of the mushrooms consumed come from the fresh market, labour costs for harvesting mushrooms account for around 15% to 30% of the production value. Therefore, mechanical or robotic picking could help to alleviate the associated labour shortage issues and costs, so researchers looked for a solution.

Researchers at Penn State's College of Agricultural Sciences have now developed a robotic mechanism for automated harvesting of button mushrooms. The prototype uses a pneumatic system that has been designed to be integrated with a machine vision system. It has been shown to be capable of both picking and trimming mushrooms growing in a shelf system.

Developing a device to effectively harvest mushrooms was a complex endeavour, explained the lead author of this study, Long He, assistant professor of agricultural and biological engineering. In hand-picking, a picker first locates a mature mushroom and detaches it with one hand, typically using three fingers. A knife, in the picker's other hand, is then used to remove the stipe end. Sometimes the picker waits until there are two or three mushrooms in hand and cuts them one by

one. Finally, the mushroom is placed in a collection box. A robotic mechanism had to achieve an equivalent picking process.

The researchers designed a robotic mushroom-picking mechanism that included a picking 'end-effector' based on a bending motion, a '4-degree-of-freedom positioning' end-effector for moving the picking end-effector, a mushroom stipe-trimming end-effector and an electro-pneumatic control system. They fabricated a laboratory-scale prototype to validate the performance of the mechanism.

The research team used a suction cup mechanism to latch onto mushrooms and conducted bruise tests on the mushroom caps to analyse the influence of air pressure and acting time of the suction cup.

The test results, recently published in *Transactions of the American Society of Agricultural and Biological Engineers*, showed that the picking end-effector was successfully positioned to the target locations and its success rate was 90% at first pick, increasing to 94.2% after second pick.

The trimming end-effector achieved a success rate of 97% overall. The bruise tests indicated that the air pressure was the main factor affecting the bruise level, compared to the suction-cup acting time, and an optimised suction cup may help to alleviate the bruise damage, the researchers noted.

The laboratory test results indicated that the developed picking mechanism has potential to be implemented in automatic mushroom harvesting.

Mobile bulk bag discharger with screw conveyor

The Flexicon Mobile Bulk Bag Discharger with Mobile Flexible Screw Conveyor allows dust-free discharging of bulk solid materials and conveying to downstream process equipment or storage vessels throughout the plant.

Mounted on locking castors, the BULK-OUT BFF Series discharger has four adjustable extension posts to accommodate bulk bags 915 to 2135 mm tall. The removable bag-lifting frame with Z-CLIP strap holders allows bulk bags to be attached at ground level, then forklifted into receiving cups on the discharger frame.

A SPOUT-LOCK clamp ring atop a pneumatically actuated TELE-TUBE telescoping tube secures the clean side of bag spout to the clean side of the equipment, and exerts continuous downward tension on the bag as it empties and elongates, promoting flow and evacuation. A vent port with filter sock contains dust.

Additional flow is afforded by FLOW-FLEXER bag activators that raise and lower opposite bottom sides of the bag at timed intervals into a steep 'V' shape, and top-mounted POP-TOP extension devices that elongate the entire bag, promoting total discharge with no manual intervention.

The discharge housing of the mobile flexible screw conveyor is supported by a mast affixed to the mobile discharger frame, allowing the transfer of free- and non-free-flowing bulk materials to multiple destinations.

The flexible screw is the only moving part contacting material and is driven by an electric motor beyond the point at which material is discharged, preventing material contact with seals.

The entire unit can be rolled to a cleaning station. A lower clean-out cap on the conveyor tube can be removed to flush the smooth interior surfaces with steam, water or cleaning solutions, or to fully remove the flexible screw for cleaning and inspection.

The system is available in carbon steel with durable industrial coating and stainless steel material contact surfaces, or in all stainless steel finished to industrial, food, dairy or pharmaceutical standards.

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Reinventing fire detection in food facility cold storage

While the threat of a fire may seem minimal in subzero temperatures, serious risk factors exist in food industry cold storage facilities as most stored goods and delivery materials (boxes, pallets, packaging) are combustible.

The environment is dry, with low humidity, and contains multiple ignition sources. Additionally, the building's insulated walls and ceiling can retain a fire's heat, potentially furthering its spread, and high airflow can disperse smoke throughout the refrigerated space.

Fire in cold storage facilities

Causes of fire in cold storage facilities can include problems with electrical distribution, lighting equipment, transport equipment faults (conveyors), maintenance operations (hot work) and arson.

The cost of a fire goes far beyond the loss of the building structure and materials. The perishable nature of the goods, whether meat, produce or dairy, commonly stored in freezers or coolers, makes it essential to avoid any rise in temperature. Heat from a fire or a temperature rise due to refrigeration system downtime following a fire can result in significant stock spoilage and revenue loss. Even a spark or smoke from an emerging fire can lead to costly losses if not detected and managed early. Food products exposed to even low levels of smoke over time can be contaminated and therefore unusable.

Losses caused by downtime, operation interruption, business reputation and goodwill can also be significant.

Solving fire detection challenges

Refrigerated storage facilities can present challenges in fire detection.

"Traditional spot detectors are not designed to operate in food industry subzero temperatures," said Khaleel Rehman, Director of Development for the Advanced Detection Fire Team at Honeywell.

According to Rehman, the subzero temperatures and heavy icing associated with cold storage may degrade the performance

and operation of conventional detection systems, particularly in large-volume, high-ceiling cold storage settings.

Fortunately, protecting life and inventory is much easier for even the largest food processing cold storage facilities as aspirating smoke detection (ASD) technology becomes more widely adopted. Far from new, the core ASD technology has been used for decades in critical applications like data centres, where early smoke detection is critical. The combination of programmable alarm threshold levels and the advantage of extracting the air sample out of a harsh environment makes ASD a suitable solution for these facilities.

Honeywell said that compared to traditional spot smoke detectors, aspirating smoke detectors can improve a warehouse by detecting smoke at the earliest possible stage via numerous sampling points, while reducing false alarms and maintenance.

According to Rehman, for food industry cold storage applications, the Honeywell VESDA VEU aspirating smoke detectors are well suited. The system draws air samples in a continuous process through holes in long runs of durable industrial pipe mounted along the walls and ceiling.

"Cold storage requires superior smoke and fire detection systems with a performance-based design approach like the VESDA VEU, designed to reliably operate in adverse, subzero conditions," said Rehman.

"It can detect smoke at the very earliest stages when standard detection systems cannot. Compared to traditional detection systems using heat signatures, it can detect smoldering smoke significantly faster."

Honeywell Building Solutions
www.honeywell.com



Miniature spectrometer

with potential food applications

In the future, it could be possible to assess the decomposition of foods for consumption and recognise fake drugs via a miniature spectrometer integrated on a smartphone in a quick, cost-effective and straightforward way.

The process is being made possible by a chip spectrometer, weighing just one gram, from the Fraunhofer Institute for Electronic Nano Systems ENAS. The researchers aim to mass-produce this component for around a euro (AU\$1.58) using conventional technologies.

Current infrared spectrometers weigh several kilograms and cost thousands of dollars to produce. And although transportable devices weighing slightly less do exist, they are unsuitable for the mass market — in terms of cost and size and also in terms of operation and analysing the results.

“Our infrared spectrometer weighs only about a gram and we plan for it to cost less than a euro to produce,” said Dr Alexander Weiß, Head of Department Multi Device Integration at Fraunhofer ENAS. “This will allow it to be integrated into smartphones, for instance.”

Applications

The potential applications of the miniature spectrometer are by no means limited to recognising fake drugs. Other applications include:

- assessing the maturity or microbial decomposition of foods for human and animal consumption;
- measuring the air quality of interiors and vehicles for effective climate control;
- detecting pollutants in air, water or foodstuffs.

How does it work?

Just like conventional infrared spectrometers, the miniature spectrometer works by emitting light beams in the infrared range. The light of different wavelengths is then fragmented using a tunable filter and conducted to a detector by means of integrated waveguides.

Grating couplers with nanostructures bundle the light reflected by, for example, a pill being tested into integrated waveguides.

If the air quality is to be tested, the light enters a special absorption cell integrated in one plane instead.

By plotting how much light reaches the detector at which wavelength, a characteristic spectrum for each sample is achieved, similar to a fingerprint.

For example, a fake pill with different ingredients will be detected as it has a different spectrum to that of the original drug.

“Conventional spectrometers usually consist of discrete, more or less well-integrated components. We, on the other hand, integrated the beam guidance, the splitting of the individual wavelengths and the detection function in one plane — we are therefore also calling this an inplane spectrometer,” Weiß explained.

If the spectrometer is to be capable of being integrated into smartphones, for example, the researchers had to think about more than just size. Operation must be easy and intuitive and the system must then provide the user with clear evaluations.

The researchers developed a concept: smart learning algorithms.

“If many people use the technology, the system will learn quickly,” Weiß said.

The user will simply need to pull out their phone, start the spectrometer via a special app and hold it over one of the products, for example, a pill. The user will also see an instruction that guides them through the measurement process.

The spectrometer generates the spectrum automatically and the software compares it to reference spectra entered into a database by specialists beforehand. The more people who come to use the system, the greater the possibility for making comparisons. The user sees only the result, “original drug”, for example.

Keeping the cost down

From the outset, the researchers kept the cost of producing the spectrometer in mind.

“We designed the spectrometer in a way that would allow it to be mass-produced inexpensively using conventional microsystems engineering technologies. Manufacturers can use the processes that are standard on the large fabrication lines, fabs for short,” Weiß explained.

The researchers have already produced the first spectrometer chips and provided proof of concept.

A number of different characterisations are now on the agenda and the equipment required for this has been financed by the Research Fab Microelectronics Germany.

If these investigations go as hoped, the spectrometer could be on its way to the mass market in around two years’ time.



Inspiring **discovery**

Self-averaging flow meter

The McMenon Averaging Pitot Tube (MAPT) is a multiport self-averaging flow meter with a design based on the classical pitot tube concept of fluid flow measurement, which can be installed into a variety of industries. The flow meter produces an averaged differential pressure (DP) signal proportional to the square of the flow rate. The DP output is normally piped to a Differential Pressure transmitter in order to generate an electrical signal proportional to the flow rate.



For certain applications, the DP transmitter can be mounted directly on to the flow meter via an integral valve manifold.

Each one is designed to span the process pipe diameter and comprises four basic components — an outer impact tube, internal averaging tube, a low pressure chamber and a head with HP and LP impulse connections.

The outer impact tube has several pressure-sensing holes facing upstream which are positioned at equal annular points in accordance with a log-linear distribution. The 'total pressures' developed at each upstream hole by sum of the impact of the flowing medium and the static pressure are firstly averaged within the outer impact tube and then to a second order (and more accurately) averaged within the internal averaging tube.

This pressure is represented at the head as the high-pressure component of the DP output. The low-pressure component is generated from a single sensing hole located on the downstream side of the outer impact tube, measuring static pressure. For bidirectional flow measurement, it can be supplied with the same number of downstream ports as upstream.

The MAPT is an improvement on the round sensor design due to the unique profiled flats which are positioned around the downstream hole in order to define the separation point at which the flow lines separate as the fluid passes around the outer impact tube. This feature creates a stable pressure area at the downstream pressure sensing hole thereby maintaining a more constant flow coefficient at high velocities enabling a wide range of flow measurement (turndown).

AMS Instrumentation & Calibration Pty Ltd

www.ams-ic.com.au

Homogeneous and modular conveyor belting for direct food contact



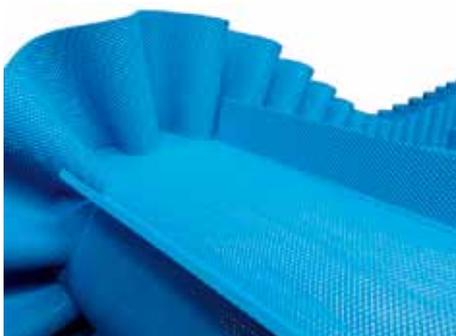
BMA Belting's collaboration with world class manufacturers Volta Belting Technology and Modutech Modular Belting provides the most comprehensive range of customised hygienic light weight belting for Australia's processed food industry.



Volta's patented sprocket driven Superdrive and DualDrive designs incorporates strict hygienic standards with minimal maintenance and running costs, making it the most ideal option for all unpackaged food processing conveyors.

Volta's Metal Detectable range of positive driven hygienic belting and weldable profiles bring a new level of confidence to Food Manufactures and the peace of mind that foreign objects from their belting assets will not make it into finished products.

Modutech offer combinable modular belting designs, materials, and accessories with the advantages of resilience in difficult environments, sterilisation, low maintenance and easy installation. The belts are secured with full-length hinge rods and driven through plastic sprockets and come in a range of pitches and durability.



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Potential bellyache for gluten-free products

New research has identified proteins in a common weed which could play havoc for Australian farmers growing gluten-free crops, such as millet, buckwheat and sorghum, and people suffering from gluten intolerance.

The gluten-like proteins found in ryegrass could be mixing with crops commonly used as gluten-free products or wheat replacements and causing a reaction among people with coeliac disease or gluten intolerance.

The work, led by Edith Cowan University (ECU) and Australia's national science agency, CSIRO, identified the proteins in 10 cultivars of ryegrass (*Lolium* species), a costly and invasive family of weeds commonly found in Australian cereal crops.

Dr Sophia Escobar-Correas, a researcher based at ECU and CSIRO said the team identified 19 proteins found in ryegrass, which had similar properties to gluten proteins.

"We have developed a method to detect these ryegrass proteins that allows us to distinguish them from other grains," she said.

"While these proteins aren't strictly defined as gluten, they have the potential to trigger reactions for people who are coeliac and those with a gluten intolerance."

This fundamental research helps understand whether ryegrass might be a problem so science can start to determine the impact it might — or might not — be having and devise solutions that give the best outcomes if it is.

Dr Escobar-Correas said the next step is to undertake clinical studies to investigate whether these proteins trigger a coeliac response.

"If these proteins cause a reaction for people with gluten intolerance, then it's important that we develop tests to detect their presence in food products which are otherwise gluten-free," she said.

Professor Michelle Colgrave from ECU and CSIRO was a co-author on the research and said it has identified an important potential challenge for gluten-free products.

"In 2019, the global market for gluten-free foods was worth around \$6.3 billion and its growth shows no sign of slowing," she said.

"This research will help give consumers and producers confidence that products labelled as gluten-free are free from other proteins which may trigger reactions resulting from agricultural co-mingling."

The research has been published in the journal *Frontiers in Nutrition*.



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PGPR for chocolate

Palsgaard has launched a PGPR product for chocolate manufacturers.

PGPR (polyglycerol polyricinoleate) is used in chocolate production for mould optimisation, flow control and viscosity reduction.

Developed exclusively for chocolate, Palsgaard PGPR 4190 is 15% more efficient at controlling viscosity than Palsgaard's existing PGPR 4150, and is claimed to be used at a dose 30–40% lower than other PGPRs.

Providing functionality and efficiency, other benefits are said to include easier flow, better coating of inclusions, and taste and odour neutrality. The product is subject to Palsgaard's quality standards, with batch-to-batch checks for uniform stability.

The product is designed for chocolate spreads and enrobed and moulded products. Although it works well with traditional chocolate emulsifier lecithin, it is suitable for Palsgaard AMP 4455, an alternative to lecithin with good organoleptic properties.

Savannah Bio Systems Pty Ltd
www.savannah.com.au

Culture kit for fermented plant bases

As dairy-free alternatives to yoghurt, 'vegurts', gain traction worldwide, competition continues to grow among producers striving to offer consumers tasty, healthy and sustainable products.

Chr. Hansen has now launched the VEGA Culture Kit, which is specifically developed for fermented plant bases. It enables plant-based innovators to create customised and differentiated features for their products in taste, texture, health and sustainability.

The kit comprises customisable starter cultures, probiotics and bioprotective strains.

Benefits of the kit include: enhanced taste and texture with a choice of starter cultures that can differentially drive flavour and texture in plant-based yoghurts; and probiotic support with VEGA nu-trish blends of cultures, including Chr. Hansen's *Bifidobacterium*, BB-12 and *Lactobacillus rhamnosus*, LGG. These cultures have been designed specifically for use in plant bases. The VEGA FreshQ culture solution is also designed to support a longer shelf life.

The VEGA cultures are produced using ingredients that are dairy-free, contain no GMO ingredients and are free of any animal-derived substances. They are suitable for use in vegetarian, vegan, Kosher and Halal products.

Chr. Hansen
www.chr-hansen.com



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Lactose-free milk using graphene oxide membranes

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The amount of disaccharide (lactose) in dairy foods varies between products; some cheeses contain virtually zero, while milk contains the most lactose of all the dairies at approximately 4–5 wt%. As a large portion of the world population is intolerant to lactose, there is an increasing demand for lactose-free milk.

Milk is usually delactosed through lactose hydrolysis, via enzymatic conversion into galactose and glucose. However, this process can increase sweetness and change colouring, and may decrease the nutritional value. A research group led by Aaron Morelos-Gomez of Shinshu University's Global Aqua Innovation Center has now investigated the application of graphene oxide-based nanofiltration membranes for milk.

Graphene oxide membranes can create a porous foulant layer; therefore, their filtration performance was found to be able to be maintained better than commercial polymeric membranes. The chemical and laminar structure of the graphene oxide membrane allowed an enhanced permeation of lactose and water while rejecting fat, proteins and some minerals. Therefore, the texture, flavour and nutritional value of milk were preserved better than with commercial polymer membranes.

The concentration of lactose and lactose permeate flux was much higher than commercial nanofiltration membranes, due to the porous foulant layer and the laminar structure of the graphene

oxide membrane. The irreversible fouling was improved by using a support membrane with 1 µm pore size for the graphene oxide membrane. This caused the formation of a porous fouling layer that allowed a higher recovery of water flux after milk filtration.

The research demonstrated that application of graphene oxide membranes provided good antifouling property and high selectivity for lactose, making it particularly suitable for dairy industry applications.

The method has a high potential for removing sugars from beverages while preserving other ingredients, therefore increasing their nutritional value. The high antifouling property against a solution rich in organic matter, such as milk, makes it potentially suitable for other applications such as wastewater treatment and medical applications.

The research group plans to keep exploring applications of graphene oxide membranes.

For more information about this research, the study 'Graphene oxide membranes for lactose-free milk' can be found in *Carbon*.

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Low GI sugar process recognised by UN Food Systems Summit

Nutrition Innovation has been recognised at the United Nations Food Systems Summit for its Nucane process, which is being used to create low-GI sugar at a NSW mill.

Australian-owned company Sunshine Sugar congratulated its industry partner for the award. After teaming up with Nutrition Innovation in 2018, the Nucane process helped create Sunshine Sugar's Low GI Sugar product.

Developed at the company's Condong sugar mill, the process produces a 'wholesome' sugar that retains naturally occurring and beneficial antioxidants. Being low in GI (Glycaemic Index) means that it is more slowly digested, absorbed and metabolised — resulting in lower and slower rise in blood glucose.

Selected from nearly 2000 applications from 135 countries, Nutrition Innovation is amongst a group of winners who showcase inspiring, diverse and impactful solutions in improving access to healthy, sustainable food.

"It's a testimony to not only our innovations, but all of our partners around the world," said Founder and Chairman of Nutrition Innovation Dr David Kannar. "Our objectives have always been to create innovations, like Nucane, to solve global health and nutrition challenges."

The United Nations Food Systems Summit was created to raise awareness of the critical role that agriculture and food systems play in achieving a sustainable future.



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Whey protein ingredient for yoghurts

Arla Foods Ingredients has launched a whey protein ingredient to help meet the growing demand for high-protein yoghurts with health credentials.

Nutrillac FO-7875 allows manufacturers to develop yoghurts (both spoonable and drinkable) with higher protein content than typical products, which generally range from 5% to 9%. For example, it can be used to create a drinking yogurt with 11% protein and only 0.8% fat.

As well as enhancing health credentials, the ingredient is highly functional. It can deliver a creamier and smoother texture, even in low-fat recipes, and does not increase viscosity. Furthermore, it does not require the addition of stabilisers, thus allowing cleaner labels.

Arla Foods Ingredients

www.arlafoodsingredients.com/

Jade and lime food colourings

GNT has launched two EXBERRY Coloring Foods made from turmeric and spirulina, opening up opportunities for clean-label greens.

The Shade Jade Green is a bright, bluish-green shade, while Shade Lime Green provides a yellowish-green hue. The products expand GNT's range of green Coloring Foods, helping the company cater to the growing global demand for green colours that support clean-label declarations.

Both colourings are liquid-based and can be used in a wide range of applications. They are suitable for confectionery such as fruit jellies and hard-panned products; dairy products including yoghurt and ice cream; and



decorative coatings for bakery, dairy and more.

They also designed to have no impact on taste in the final application as a result of the physical, water-based methods used to create the colours.

EXBERRY

www.exberry.com

Food product launches

1 Ice cream cake range

Cold Rock Ice Creamery has unveiled its ice cream cake range with eight flavours to choose from. Flavours include Tira-Miss-You, Sweet Heart Strawberry and For the Love of Bis-Coff. The cakes can also be customised to suit tastes.

www.coldrock.com.au



2 Indigenous-owned roasted coffee

DHUWA — pronounced “Dee:Wah” and meaning to feel alive in Bidjara language — is an Australian Indigenous-owned coffee brand, roasted in partnership with Griffiths Bros Coffee Roasters. Three blends are available.

<https://dhuwacoffee.com.au>



4 Wellness shots

Kiwi drinks manufacturer Goju has released a range of wellness shots which includes flavours such as ginger, turmeric and charcoal, along with new additions, matcha and collagen. There are no preservatives or additives in these 60 mL juice shots.

www.gojushots.com



3 Fruity sparkling mineral water

Santa Vittoria has released a range of four sugar-free flavoured mineral waters in a slimline, 100% recyclable aluminium can. Each can contains no sugar, no artificial flavours and no preservatives. The range comprises four sparkling waters, flavoured with a hint of natural fruit essence — orange and mango, grapefruit, pomegranate and lemon.

www.santavittoria.com.au



5 Vietnamese roll ingredients

Roll'd has released its Vietnamese sauces and ingredients which are designed to be simple to use at home. The ingredients are preservative- and additive-free, and suitable for vegetarians and vegans.

www.rolld.com.au





Chickpea protein beats eggs in mayo

The global egg replacement ingredient market is expected to reach around AU\$2bn by 2026 as food manufacturers work to meet consumer demands for vegan, vegetarian and allergen-free products. The chickpea's unique ability to assume egg-like behaviour has been gaining traction for a number of years.

Foodtech startup ChickP has now developed a chickpea isolate as a plant-based egg alternative and teamed up with select food companies to help formulate egg-free recipes, including a creamy mayonnaise substitute and salad-dressings. The resulting products have the flavour, appearance and functionality of counterparts with real egg, all the while adding nutritional value.

ChickP's proprietary isolate has been used as a one-to-one replacement for egg yolk in mayonnaise recipes and as a clean-label emulsifier to whip up vegan creams, sauces and dressings. The mayonnaise pilots were so successful that one formulation is now going into large-scale pilot production.

Products crafted with the isolate have exhibited long shelf life and good heat stability, making the ingredient suitable for dispersal into both hot and cold applications.

With 90% protein content, the isolate has the potential to release the vegan mayo market from traditional dependence on modified starches, hydrocolloids and stabilisers for emulsification and flavour. The high protein content can help to eliminate the need for adding ingredients that are less nutritionally relevant to the final product.

"ChickP isolate presents a highly nutritious clean-label, plant-based solution to replicating the role of the egg yolk in mayonnaise formulations," said Itay Dana, VP of Sales and Business Development for ChickP.

According to Dana, the isolate has shown good foaming capabilities and can be tailored to produce creamy mayonnaise products, without the use of synthetic thickening, texturising or masking agents.

The company is now commercialising two different chickpea-sourced isolates, each designed to impart specific organoleptic qualities.

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