

INTERNATIONAL

# DAIRY

November/December 2023

magazine

PROCESSING | INGREDIENTS | PACKAGING | IT | LOGISTICS

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dsm-firmenich 

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- non-organic

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- organic 

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[www.schwarzwaldmilch-dairyingredients.de/en/vegan-ingredients/](http://www.schwarzwaldmilch-dairyingredients.de/en/vegan-ingredients/)



# On our own behalf

## Change in our editorial team

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Roland Sossna  
Editor IDM  
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After almost 40 years of working as a trade journalist for the dairy industry with a total of about 1,200 print editions produced from 1986 onwards of Deutsche Milchwirtschaft and EDM and from 2008 onwards of molkerei-industrie and IDM International Dairy Magazine, it is time to hand over the editorship to younger hands.

I feel privileged to have been able to work for established trade publishers for so many years and to prepare new developments in dairy processing for our target readership.

Above all, I am grateful that you, dear readers, have shown interest in my reports over such a long period of time. Thank you very much for your trust!

The editorship of the print magazines molkerei-industrie and IDM International Dairy Magazine will now pass to my colleague of many years, Anja Hoffrichter, whom I wish all the best and success in her extended task.

Thank you all again and good luck in everything you do in your companies.

We will continue to support you with our trade publications.

**Roland Sossna**



Anja Hoffrichter  
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At this point I would like to introduce myself briefly to you, dear readers. Some of you may already know me from my time as editor at Deutsche Milchwirtschaft and EDM, where I worked after graduating from Hanover-Ahlem in 1995.

For almost 15 years now I have been working "in the background" for IDM International Dairy Magazine and molkerei-industrie and I am very much looking forward to the new challenge in a managerial position. I hope that you will have the same confidence in me as in my long-time colleague Roland Sossna, whom I wish all the best.

My goal is to further establish our trade journal in the market and to adapt it to current developments. Suggestions, criticism and questions are most welcome.

**Anja Hoffrichter**

NEWS

## GEA

### Heat recovery system for Britvic

GEA supplies Britvic, one of UK's leading soft drinks manufacturers, with a heat recovery system at its Beckton site, in London. The installation begins this summer and will result in cutting the factory's carbon emissions by an estimated 1,200 tons annually. GEA is supplying two industrial ammonia heat pumps and a large thermal storage tank.

Britvic will convert much of its process heating from natural gas steam boilers to a carbon-free heat recovery systems driven by heat pumps. The new heat recovery system, designed and supplied by GEA, re-uses low temperature waste heat from the existing production system. This waste heat was previously released into the atmosphere and will now be used to heat hot water to 92°C, which will be distributed throughout the plant. Britvic says this will decarbonize 50 percent of the site's heat demand by using less gas in the traditional steam boilers, shifting the heat source away from fossil fuels. A valved connection is provided for up to 750 kW of heat which will be recovered in the future from other sources.

"Upgrading legacy industrial steam heating systems and integrating these with heat pump technology is a challenge. At GEA, we can supply heat pumps and integrated process heat exchanger skids as one solution. This clearly sets us apart from our competition," says Matthew Hadwen, Beverage Sales Manager at GEA's Liquid & Powder Technologies Division.



Existing refrigeration plant room at Britvic with three GEA BluAstrum chillers. Their waste heat will also feed the new heat pumps (photo: GEA)



GEA RedGenium heat pumps are used for industrial applications where process heat is required for local supply or district heating networks (photo: GEA)

## DSM-FIRMENICH

### New generation of starter cultures

dsm-firmenich launched Delvo Fresh Pioneer – a new generation of starter cultures for very mild yogurts. Enabling exceptional pH stability during processing and throughout shelf life, this launch addresses yogurt manufacturers' need for high quality ingredients, stable production processes and consistent mildness throughout shelf life. With this generation of cultures, yogurt pH is extremely stable for up to 60 days in cold storage, representing a significant improvement compared to other cultures for mild yogurt recipes.

NEWS

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Luis Cubel, Commercial Director of Arla Foods Ingredients, and Michael Friede, CEO of Brenntag Specialties, signing the cooperation (photo: AFI)

## AFI / ZHONGBAI

### New distribution agreement

Arla Foods Ingredients and Zhongbai Xingye Food Technology, a Brenntag Group company, have signed a new distribution agreement to serve the Chinese food and nutrition markets. Zhongbai has a strong and long-standing working relationship with Arla Foods Ingredients, which offers a broad range of premium food and nutrition ingredient solutions in China and globally.

The new agreement, which is effective immediately, will cover the full range of Arla Foods Ingredients' business units, focusing on solutions for three key segments:

- » Infant Nutrition: With Chinese parents increasingly demanding premium products, the partnership will focus on helping manufacturers improve the nutritional profile of formula and other products for infants and toddlers.
- » Performance Nutrition: There is high potential for further growth in China's performance nutrition market, which includes sports nutrition, nutrition for seniors, and dietary supplements.
- » Food and beverage: The two companies see strong growth potential in segments such as bakery and beverages.



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# Work safety taken a step further

## Hazardous substance management in dairy companies

**W**hether it's a leaking container or a pair of safety goggles that you forgot, accidents can also happen in dairies. However, to ensure that the substances used there do not pose a serious threat to the health of employees, efficient and legally compliant hazardous substance management is essential. However, the management of the requirements to be observed and the large number of different substances can quickly become a lengthy and complicated process. Modern dairies, such as the DMK Group, have long relied on digital hazardous substance management using the Quentic software solution.

### In focus: responsible handling

As in every industry, the same applies in the dairy industry: avoiding accidents has top priority. After all, you are dealing with various hazardous substances such as nitric and hydrochloric acid, caustic soda, sulfuric and phosphoric acid. Most importantly: keep an overview. Because only responsible and forward-looking handling of the hazardous substances used can guarantee legally compliant occupational safety.

The large number of substances used is often only surpassed by the large number of laws and regulations that determine the exact handling of substances. These are updated at regular intervals and supplemented by other important points. Keeping an overview and always being up-to-date is a big challenge and means one thing above all: a lot of administrative effort. Occupational safety experts often still deal with this topic in a very traditional way and sometimes still enter hazardous substances in analogous tables. This is an unnecessary consumption of valuable resources, paper and time, which everyone involved can and should invest more sensibly.

### Efficient hazardous substance management: How digital solutions can help

Software solutions such as Quentic, one of the leading providers of occupational safety, environmental, sustainability and quality management, help to simplify the management of hazardous sub-



stances in dairies. With digital hazardous substance management, each hazardous substance can be linked to the associated safety data sheets, operating instructions and certificates and viewed and processed equally at all locations.

In short: Digital hazardous substance management simplifies and standardizes important processes, enables the intuitive addition of data sheets and ensures legally compliant updates. In this way, a uniform list of all hazardous substances relevant to the company can be developed. In addition, the rules for handling hazardous substances can be standardized. It is possible to establish cross-site testing and release processes.

### Managing working and hazardous materials digitally: This is how DMK Group does it

Digital hazardous substance management has been an integral part of the workflow for the DMK Group for more than ten years. The following has always been the case: in addition to product quality,

*Quentic integrates standardized pictograms according to ISO 7010 (photo: gorodenkoff/iStock via Getty Images)*



*DMK relies on digital hazardous materials management using the Quentic software solution (photo: DMK)*



*The expansion of the Hazardous Substances software module further strengthens the interaction between the Quentic platform and Quentic App (photo: Bojan89/iStock/Getty Images Plus via Getty Images)*

the protection and safety of the around 7,500 employees across Europe have absolute priority. For the safety officers at DMK, it is therefore a matter of course that environmental, health and hazardous substance management throughout the company is in line with the legal basis and the group's own high safety requirements.

As early as 2012, it became clear that the tedious task of filling out Excel spreadsheets at each of the more than 20 locations was no longer a practical solution. That's why the DMK Group chose Quentic from a number of digital software solutions. With success: Today, all working and hazardous materials are stored in Quentic and are continuously updated here.

### Free time to establish a safety culture

Safety officers in companies will notice that the use of digital solutions for the management of hazardous substances brings many time and organisational advantages. However, for occupational safety to be taken further, no dairy should limit itself to dutiful haz-

ardous substance management alone. After all, the most important actors are and remain the employees. After all, mistakes are human and accident prevention primarily refers to the fact that all people in the dairy are familiar with the hazardous substances and establish a responsible routine in handling them. The time saved by digital hazardous substance management is therefore well spent in promoting a company-wide safety culture. Here, all employees, regardless of their position in the company, feel equally responsible for occupational safety in the dairy. Further training can help all those involved to gain an awareness of the hazards in the company and to practise dealing with them in a routine manner.

In this way, other dairies can follow the DMK Group's example and establish a workplace in which everyone takes care of themselves and others. Even though hazardous substances play a major role in dairies, they do not have to pose a health risk to anyone – as long as proper hazardous substance management and motivation to work towards occupational safety go hand in hand.

# FMI' Analyst view

Liberating labels: empowering brands through expressive packaging



The global labels market size is set to reach a valuation of US\$ 41.75 billion in 2023 and accelerate at a CAGR of 4.9% from 2023 to 2033. The market is projected to reach US\$ 67.36 billion by the end of 2033. Sales of labels are anticipated to augment, with the top 5 players holding 10-15% of the global labels market share in 2023.

Based on product type, the pressure-sensitive labels (PSL) segment is projected to hold a major portion of the global labels industry during the forecast period. Future Market Insights says, these labels can withstand and maintain their integrity in different environmental conditions and are easy to apply. The segment is thus anticipated to hold around 3/4th of the market by the end of the forecast period.

According to FMI, the labels industry totalled US\$ 39.8 billion in 2022. Sales of labels may propel, with the top 3 countries estimated to hold 25-30% of the global labels market by the end of 2023. The market is estimated to witness a positive growth outlook by the end of 2023.

The need for better safety and authenticity among end-use industries is anticipated to bolster the demand for Smart labels, creating new growth opportunities in the global market. The labels market is projected to grow 1.7 times the current value between 2023 and 2033.

The North American and European regions are anticipated to showcase high demand for labels due to the implementation of strict regulations by government bodies associated with the packaging and labelling of various end-use products. The rapid expansion of these regions' food & beverage and pharmaceutical industries can fuel growth.

## Label market dynamics – Self-adhesive labels with a low environmental footprint

Rising demand for sustainable products and various government & non-government initiatives revolving around the use of sustainable products would create new growth opportunities for the sustainable labels market. Key labels manufacturers operating in the market are offering sustainable labels to cater to the growing demand.



For instance, Avery Dennison Corporation offers a label made from recycled PP. The company's recycled PP is produced from 30% pre-consumer waste. Also, it provides a multicycle label that is an ultra-permanent self-adhesive label for beverage packaging that withstand the power of up to 30 product life cycles. Besides, the company has partnered with Romei Replastic to convert labeling waste into new raw materials to help customers find the right label recycling solution.

The growing focus on sustainability is rapidly shifting the packaging and labeling industry. The availability of compostable self-adhesive materials would drive the target market. HERMA offers compostable self-adhesive raw materials for biodegradable labels. Overall, key players are projected to adopt the sustainability trend and offer sustainable self-adhesive labels to strengthen their positions in the market.



(photo: Gerrep)

### Challenges in the labels market

The labels market faces several difficulties, such as changing regulatory demands for precise product and sustainability information, forcing producers to alter labelling procedures periodically. The complexity of the global supply chain makes flexible labelling solutions necessary.

Innovative design methods are required because of the consumer demand for customized and aesthetically pleasing labels, resulting in a spike in design complexity. Strong security precautions are necessary because counterfeiting is still an ongoing issue.

Physical and digital labels must work together seamlessly to avoid compatibility problems brought on by digital transformation, which is necessary for a successful Omni channel experience. Overcoming these hurdles requires balancing compliance, creativity, security, and technological integration.

### Regional Outlook

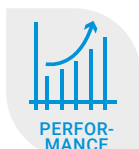
According to FMI, the United States is anticipated to hold 85% of total sales in North America by the end of the forecast period. According to the United States Food and Drug Administration, labelling for food under the Federal Food, Drug, and Cosmetic Act

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## GRUNWALD filling and dosing machines

**GRUNWALD**  
Dosing · Filling · Packing

allow for individual filling of various cups based on maximum hygiene standard. GRUNWALD set new standards with the option for multi-layer cup filling and accurate dosing of a wide variety of toppings. Implement successful product presentations and re-experience quality, efficiency and performance.



is required as the demand for food hygiene, nutrition, and health-care has grown rapidly. The boom in the e-commerce sector across the United States is mainly driven by rapid technological innovation and ongoing digitalization in the packaging & labelling industries.

Changing lifestyles and demographics are leading to the growing consumption of ready-to-eat and packaged processed food items. Besides, snacking in place of meals would foster the need for small, single-use pouches, augmenting the demand for labels in the country. Growing demand for sustainable packaging and labelling solutions is another key factor anticipated to facilitate the high demand for eco-friendly labels in the United States market.

### Label industry's future

The Indian labels market is anticipated to boost at an 8.9% CAGR over the forecast period. According to the Food Safety and Standards Authority of India (FSSAI), there is a high demand for packaged food and a plan to present front-of-package (FoP) labelling on packaged foods in India. This may help consumers to choose healthier food.

Advancing demand for perishable frozen packaged products such as meat, poultry, and seafood is anticipated to augment labels' sales due to the shifting consumer preference for packed & convenient food consumption. India is a fast-emerging economy with surging demand for organized retail outlets, supermarkets, and convenience stores that may bolster growth in the labels market. The emergence of numerous quick-service restaurants and food delivery services can foster growth in India.

### Competitive landscape

Pivotal label manufacturers strive to focus on innovative product launches, acquisitions, and expansions due to the increasing demand from the food, beverage, and pharmaceutical sectors. A few other label manufacturers are engaging in partnerships and collaborations to co-develop novel products and strengthen their presence in the market.

These insights are based on a report Labels Market by Future Market Insights.



(photo: Gerrep)

### Essential Labels Manufacturers

- » CCL Industries Inc.
- » Avery Dennison Corporation
- » Fuji Seal International, Inc.
- » Huhtamäki Oyj
- » Amcor plc
- » Coveris Holding S.A.
- » Multi-Color Corporation
- » Honeywell International Inc.
- » 3M Company
- » Klöckner Pentaplast Europe GmbH & Co KG
- » Anchor Printing
- » Derksen Company
- » Traco Manufacturing, Inc.
- » Resource Label Group, LLC



Arla Foods' Taw Valley site (photo: AFI)

### VOLAC / ARLA

#### Changes in joint venture structure of MV Ingredients

Arla Food Ingredients and Volac have for more than 10 years benefitted from the successful 50:50 joint venture based at Arla Foods' Taw Valley site. MV Ingredients produces permeate powder and liquid WPC. Arla Foods Ingredients will now take on full ownership of MV Ingredients and account management for the permeate powder. Arla Foods Ingredients will, for a period of time, continue to supply Volac with WPC liquid. The new ownership structure takes effect from September 1st, 2023.

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## AHLSTROM & THE PAPER PEOPLE

### Sustainable frozen food packaging

Sustainable, paper-based frozen food packaging is now a reality. Ahlstrom and The Paper People LLC have co-developed and launched an innovative and sustainable solution for frozen food packaging. This new line of fully fiber-based, recyclability-certified packaging is specifically designed to replace traditional fossil-based plastic and films for frozen food packaging.

The paper frozen food package is available with the Paper Peoples' Paperlock G technology, an FDA approved direct food contact heat-seal material and grease barrier that keeps grease from migrating to the outside of the package. This packaging can be printed in up to 10 colors using both flexographic and digital printing and is available with a compostable zipper in both standard and inno-lok style configurations.

## SIEMENS

### Senseye Predictive Maintenance

Senseye Predictive Maintenance combines AI with human insights and automatically generates machine behaviour models to perform predictive maintenance at scale. Determining the future condition of machinery increases productivity, backs sustainability goals, and accelerates the digital transformation of any company. The platform is quick to deploy and accessible anywhere.

#### 1. Machine agnostic

Senseye Predictive Maintenance combines leading AI with human insights and automatically generates machine behaviour models to help direct your attention and expertise to where it's needed most. It integrates with any asset, system, or data source, using data you already collect or with newly installed sensors as part of a complete package.

#### 2. Quick to deploy

Initial deployments can be up and running in weeks, with a positive business outcome demonstrable in just 3 to 6 months of use and scaling to full site development and multi-site deployment over the next 6 to 8 months.

#### 3. Designed to scale

The app is underpinned by a cloud-based platform capable of processing huge volumes of data – typically tens of thousands of related measures per hour. This enables you to reap the benefits of predictive maintenance at scale, applying it to every asset in every one of your facilities.

#### 4. Constant monitoring

Automatically monitoring your machines, the app enables your teams to focus only on what matters at the best time, puts an end to costly over-maintenance, and eliminates the need for inefficient spot checks and random sampling. With a clearer view of current and potential future risks, you can cut machine maintenance costs by up to 40%.

#### 5. Accessible anywhere

As a cloud-based platform, Senseye Predictive Maintenance makes it possible to monitor the health of thousands of assets automatically from anywhere in the world. Inspections can take place anytime via web browser, anywhere, freeing up valuable time and encouraging a more proactive approach to maintenance.



(Foto: COLOURBOX)

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#### 6. Automated detections

Through harnessing the power of advanced algorithms, the platform not only tracks equipment behaviours but also compares them against historical data. Spotting a trend or anomaly is straightforward, enabling teams to address minor issues before they escalate into major malfunctions.

#### 7. Simple workflows

Senseye Predictive Maintenance is designed to be used on the shopfloor by the maintenance and operations teams who need to keep things running smoothly and ensure that unplanned downtime stays down. Intuitive workflows focus on automatically delivering advanced Predictive Maintenance insights in an easily understandable manner.

#### 8. Enterprise integration

Operational harmony is achieved when systems communicate. The app can seamlessly interface with ERP systems, CMMS, and more, ensuring data flows smoothly across platforms, and optimising operations holistically.

#### 9. Security Features

Senseye Predictive Maintenance comes fortified with top-tier encryption and security protocols, guaranteeing that your sensitive equipment data remains shielded from potential breaches.

# BrauBeviale 2023

28-30 November, Nuremberg

# Brau<sup>'23</sup> Beviale

**A**fter a forced break of four years due to Corona, BrauBeviale in Nuremberg, one of the leading capital goods exhibitions for the beverage industry worldwide, is starting up again. The fair will be held in Nuremberg from 28 to 30 November. As diverse as the beverage industry, BrauBeviale presents its range in compact form over three days. It covers the entire process chain of beverage production: from raw materials, technologies and components to packaging, accessories and marketing ideas. Naturally for all beverage segments, including milk.

BrauBeviale offers a comprehensive range of products and services for the entire process chain in nine halls on an exhibition area of around 40,000 m<sup>2</sup> with around 900 exhibitors. 130 suppliers for packaging, closures, labelling and secondary packaging alone will be showing their solutions for the tasks involved in product-oriented and efficient packaging. Further information: [braubeviale.de](http://braubeviale.de).

On the following pages, we have compiled advance information about interesting new developments that will be on show at the fair.



## ProMinent: Dosing and disinfecting

ProMinent's DULCODES LP UV system, specially designed for use in the food and beverage industry, complies with Hygienic Design, is CIP-compatible and equipped with FDA-compliant materials. It is certified according to the new test standard DIN:19294 2020-08.

The dosing system DULCODOS kompakt is used for dosing chemicals with high precision. It has a modular design and can be used flexibly in a wide variety of applications. The stainless steel version is ready for connection.

Motor-driven diaphragm metering pump Sigma in hygienic design enables precise and hygienic metering. All materials of the pump unit that come into contact with the media are designed to be physiologically harmless in accordance with FDA and EU Directive 1935/2004.

*DULCODOS compact metering system (photo: ProMinent)*

*Innofill Glass DRS ECO modular filling system (photo: KHS)*

## **KHS: Resource-saving packaging solutions**

At BrauBeviale, KHS will be presenting its comprehensive portfolio of modern filling technology and resource-saving packaging solutions. At the centre of the trade show presentation is the Innofill Glass DRS ECO modular filling system, a success story that is particularly impressive in terms of consumption values and product quality. The Nature Multi-Pack (NMP) is also setting standards as one of the most sustainable secondary packaging solutions currently available on the market. The range is rounded off by digital KHS service products. These include intelligent remote diagnostics and remote maintenance, as well as the addition of virtual training services.

With ReDiS (Remote Diagnostic Service), system provider KHS offers highly efficient remote maintenance. System malfunctions can be analysed and eliminated, and software updates and changed system parameters can be transmitted. With its ARS (Augmented Reality Service), KHS offers additional support for time- and cost-saving troubleshooting.

KHS is also going digital when it comes to training: in addition to the tried-and-tested offers on site or in the worldwide KHS training centres, which are now also accessible online, the system provider is taking the next step towards modern and flexible forms of learning with the virtual training centre. Here, customers can independently learn knowledge for the correct operation and regular maintenance of the machines around the clock.



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**BrauBeviale 2023**  
Nuremberg,  
28-30 November  
Stand 7A-510



**SOLUTIONS  
BEYOND  
TOMORROW**

**KRONES**



**Vetropack: Special sensor solution**

Vetropack supports customers who want to check their production for problems with a special sensor solution. Embedded in an individually manufactured replica that corresponds exactly to the customer's bottle or jar, a sensor measures the forces and loads acting on the container during transport or in the filling line with the utmost precision. On the basis of the data collected, customers have the possibility to optimise their lines in a targeted manner and without unnecessary effort and costs.

*Exactly replicated sensors measure loads on the packaging in the line (photo: Vetropack)*

**Alfa Laval: Water-saving valve control units**

Alfa Laval ThinkTop V50 and ThinkTop V70 are the compact second generation of control units for hygienic valves in the beverage and brewing industries. They reduce valve seat cleaning time to less than one second, minimising water and detergent consumption by up to 95 percent. The reduced water consumption during CIP cleaning is often accompanied by a significant reduction in energy consumption. At the same time, process reliability increases.

*ThinkTop series valve control units save water (photo: Alfa Laval)*



*Electric steam boiler system from Bosch with 100 per cent green power utilisation (photo: Bosch Industriekessel)*

**Bosch: Solutions for steam and heat**

Bosch presents sustainable solutions for steam and heat generation. Beverage producers face various challenges in designing their process heat. These include compliance with new emissions regulations, fuel selection, rising energy prices and achieving climate neutrality. At the same time, high efficiency is required to serve the energy-intensive processes. "We offer a variety of solutions from electric steam generation and cost-effective waste heat utilisation to the modernisation of existing plants, for example to alternative fuels such as biogas," explains Daniel Gosse, head of marketing at Bosch Industriekessel.

*The APF-Max series comes with NIR preform heating (photo: PET Technologies)*

### **PET Technologies:** Machinery is king

The APF-Max 2 is a two-cavity machine from APF-Max series of blow moulding machine, designed to produce PET bottles ranging from 0.2 to 2.25 liters, with an output capability of up to 3,500 bottles per hour. It's a solution for those either embarking on their manufacturing journey or transitioning from semi-automatic machines to higher productivity with a linear machine.

The APF-Max 2 blow molder distinguishes itself with a range of unique features. Notably, it offers quick changeover capabilities. To ensure precision and consistent quality during the molding process each mold cavity benefits from a set of valves. The machine's patented mold closing system and automatic temperature regulation further contribute to its efficiency and reliability. One of the main features of APF-Max 2 is its NIR preform heating system.

### **Eaton:** Expanded BECO filter cartridge range

Eaton is showing the recently expanded BECO filter cartridge programme. It includes filter cartridges that are tailored to the special requirement profiles for the filtration of beverages and food. Depending on whether the user's priorities are performance, safety, economy, flexibility or preservation of the individual taste and colour of a beverage, Eaton's filtration experts can recommend the optimum combination of pre-filter and membrane filter cartridges for each individual application.

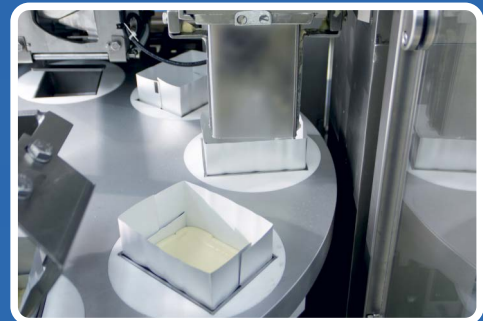


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**Ruland:**  
Cross-sector know-how

Plant-based and vegan alternatives to dairy products are all the rage. Both the production of new products from innovative protein sources and raw materials and the extraction of the proteins themselves involve technological challenges. Ruland designs and builds the appropriate process plants with its cross-industry know-how in plant engineering.

*Membrane filtration system from Ruland (photo: Ruland)*



**GEA:** Save energy, reduce pressure, go 4 bar

Every 1 bar reduction in system pressure saves about 8% of compressor energy, due to lower demands on the compressor and to greatly diminished leakage losses. Switching from 6 bar to 4 bar will save about 16% of compressor energy for state-of-the-art energy-efficiency of your plant and minimum climate footprint.

Understanding the high potential for energy savings due to reduction of pressure in compressed air, GEA decided to extend the 4-bar actuator option to almost the entire range of valves supporting customers to improve their process, a practical way to dial down these costs and the ecological footprint.

*GEA has extended the 4 bar option to almost the entire range of valves (photo: GEA)*



**PLANTENEERS**  
US location in Atlanta

NEWS

Planteneers, specialist in functional systems for plant-based alternatives, has become a key player in the strongly expanding plant-based market in just three years. Now the company has opened a new office in the United States. In Aurora Illinois, Gretchen Moon, Vice President of Commercial Operations for North America, and her team will focus on the expectations of American consumers. In addition to sales, distribution, and marketing specialists, its product managers and R&D technologists will provide new ideas and high-sales-potential concepts.



Gretchen Moon and the US Planteneers team (photo: Planteneers)





Rabobank

# Global Dairy Top 20, 2023

2023	2022	Company	Country of headquarters	Dairy turnover, 2022*	
				USD billion	EUR billion
1	1	Lactalis	France	28.6 <sup>+</sup>	27.2 <sup>+</sup>
2	↓ 4	Dairy Farmers of America	US	24.5	23.3
3	↑ 2	Nestlé	Switzerland	23.3 <sup>+</sup>	22.1 <sup>+</sup>
4	↑ 3	Danone	France	21.2 <sup>+</sup>	20.1 <sup>+</sup>
5	5	Yili	China	18.3 <sup>+</sup>	17.3 <sup>+</sup>
6	↓ 9	Arla Foods	Denmark/Sweden	14.5	13.8
7	↓ 8	FrieslandCampina	Netherlands	14.4 <sup>+</sup>	13.7 <sup>+</sup>
8	↑ 7	Mengniu	China	14.4 <sup>+</sup>	13.7 <sup>+</sup>
9	↑ 6	Fonterra	New Zealand	14.2 <sup>+</sup>	13.4 <sup>+</sup>
10	10	Saputo	Canada	13.7	13.0
11	11	Unilever	Netherlands/UK	8.3	7.9
12	↓ 13	Gujarat Cooperative Milk Marketing Federation Ltd	India	7.0	6.7
13	↑ 12	Savencia	France	6.9	6.6
14	↓ 17	Müller	Germany	6.5 <sup>+</sup>	6.2 <sup>+</sup>
15	↓ 16	Agropur	Canada	6.5	6.2
16	↓ 19	Schreiber Foods	US	6.5 <sup>+</sup>	6.2 <sup>+</sup>
17	↑ 14	Sodiaal	France	5.8	5.5
18	18	DMK	Germany	5.5 <sup>+</sup>	5.3 <sup>+</sup>
19	↓ 20	Froneri	UK	5.3	5.1
20	↑ #	Glanbia	Ireland	5.1 <sup>+</sup>	4.8 <sup>+</sup>

\* Turnover data is predominately dairy sales, based on 2022 financials and M&A transactions completed between January 1, 2023 and June 30, 2023. Pending mergers and acquisitions not incorporated include: Lactalis' acquisition of DPA Brazil from Fonterra and Nestlé, Danone's acquisition of Promedica, Saputo's disposal of two Australian processing plants to Coles, Unilever's acquisition of Yasso Holdings, Inc and Savencia's acquisition of Williner.

+ estimate.

# FMCG Gurus

## Re-Evaluating Convenience Food in a Cost-of-Living Crisis



Author:  
Eleanor Johnson, Data Analyst at FMCG Gurus

This article is based on FMCG Gurus:  
Re-evaluating Convenience Food in a  
Cost-of-Living Crisis – Global Report May 2023.



Consumer Experts, Insight Driven

**T**he cost-of-living crisis means consumers are experiencing the implications of rising prices; many are looking to make cut backs in their food shopping as they struggle with other essential living costs. Because of this, many consumers will be re-evaluating the need for convenience products such as tinned food, frozen food and ready meals as they attempt to seek more affordable products.

### Recessionary spending

Consumers lack confidence in the economy over the next twelve months; FMCG Gurus research shows that over four in ten global consumers are unconfident in the state of the economy over the next twelve months. Furthermore, consumers feel their country is in a recession regardless of whether or not it is by definition. This means many will be adopting recessionary style spending habits as they become increasingly concerned over rising living costs including utility bills, food prices and petrol. Additionally, nearly one third of consumers do not feel their household has adequate financial savings, meaning they will feel vulnerable to rising prices and be further required to cut back on spending.

Consumers feel that food prices are on the rise, our research shows that 85% of global consumers believe food and

drink prices have risen over the last twelve months. Consumers believe these price rises are across everyday items such as fruit, rice, dairy and pasta, this will mean

consumers will feel restricted in other areas as they struggle to keep up with the rising costs. With consumers feeling that everyday essentials are on the rise, they will



adopt a mindset of needing to minimize spending when purchasing products, being drawn to economical offerings, something which previously they may have seen as a last resort.

Recessionary spending includes consumers shopping around to find the best deal, and becoming less brand loyal. This means brands can no longer rely on heritage alone to drive and maintain sales. Consumers are most likely to be demonstrating reduced brand loyalty in the soft drinks and frozen food sectors, areas which are deemed economical, with consumption being driven by routine and inertia.

### Convenient and economical alternatives

Our research shows that around one quarter of consumers plan to buy more frozen food over the next twelve months. Products that are frozen and tinned are typically

associated with being more affordable but not offering the same level of nutrition as their fresh counterparts. Nearly one quarter of consumers plan to buy more frozen food over the next year, highlighting their desire to purchase more affordable foods that can be stored in bulk even if these foods are less nutritious. This means that brands need to encourage consumers to re-evaluate their attitudes towards such products, which can be done through promoting nutritional benefits of products.

Our research finds that some consumers see products which are convenient as being better value for money, which is important during a cost-of-living crisis. Consumers value their time, so saving time in preparation and cooking is key to them in their busy lives.

### New opportunities for convenience food

In an era of uncertainty, brands can encourage consumers to change their perceptions associated with economical offerings. Items that are traditionally associated with being more affordable such as tinned and frozen food should be associated with good value, not just being as cheap as possible, as this may bring down the perceived quality.

Nostalgic products appeal to consumers in difficult economic times, consumers can often turn to products that remind them of the past and simpler times. Our research finds that four in ten consumers have sought out products and flavors that remind them of the past over the last twelve months.

The ready meal category can also look to directly target those consumers cutting back on foodservice occasions. The current cost-of-living crisis means that consumers are having to reduce spending within the foodservice channel. However, consumers have high levels of self-entitlement and do not want to make sacrifices. As a result, they are seeking out more premium options at retailers as a form of compensation. This includes premium ready meals and products that complement them, such as alcoholic beverages, soft drinks, and cakes & pastries.

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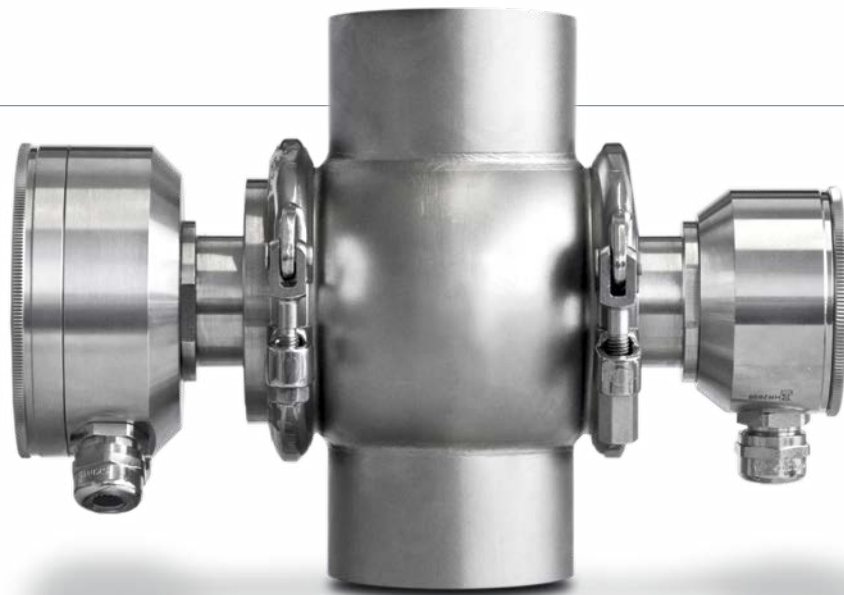
[www.hydrosol.de](http://www.hydrosol.de)

(photo: hd3dsh\_stock.adobe.com)

# Credition Dairy

Less product loss, less effluent

*The InPro 8300 RAMS optical product monitor offers simple in-line calibration correction (photo: METTLER TOLEDO)*



Credition Dairy is very interested in cost-effective solutions that deliver real measurable benefits. When Tetra Pak Processing was commissioned to upgrade equipment at Credition's facility, METTLER TOLEDO's InPro 8300 RAMS units were selected for interface detection. These product monitors have delivered benefits that have exceeded expectations and are helping Credition meet its environmental targets.

## Major producer

Credition Dairy is a major independent UK producer of a wide-range of long life milk and cream, and flavored ESL milk products. Credition Dairy supply many major British supermarkets' own label products and also produce several well-known brands including MOO flavored milks, Mars Refuel and Flora Pro-Active.

When Credition Dairy was planning to maximize productivity and minimize losses in two of its process plants, they chose a specialised engineering company to handle installation and commissioning of the new equipment.

## Rapid detection if product characteristics

During initial investigations it was found that Credition's existing system for interface detection could be improved to cut product losses and decrease effluent volumes. A search for a suitable

solution led to METTLER TOLEDO's InPro 8300 RAMS (Reflection Absorption Multi-Switch). This series of in-line optical product monitors measure light absorption and reflection from LEDs to determine color and/or turbidity. The technique is sensitive to even slight changes in the color or optical density of a liquid and responds almost instantaneously.

A choice of optical parameters provides the option to monitor product transitions based on optical turbidity or color measurement, similar to an in-line photometer.

## Increased productivity at a reduced cost

The InPro 8300 RAMS is able to minimize product losses, water usage, and effluent volumes for Credition Dairy. Sean Browne, site manager at Credition, is particularly pleased, "METTLER TOLEDO provided a very professional service and their products have delivered consistently impressive results."

In addition, the company was impressed by the monitor's ease of installation on the Tuchenhausen's VARINLINE housing and virtually maintenance free design. One InPro 8300 unit was installed on each of the lines upgraded, delivering real-time benefits and a measurable ROI. Credition has now opted to install further InPro 8300 units, including at their effluent treatment plant.



# Gut health



## Solutions for a good gut feeling

Consumers are more health-conscious than ever and recognise that different aspects of their health are interlinked and impact each other, both mentally and physically. At the same time as this shift in the consumer mindset, scientific research has made it increasingly apparent that overall health and well-being is founded on good gut health.<sup>1</sup> The need to improve gut health is also understood by consumers: 2 in 3 recognise that gut health is key to achieving overall well-being.<sup>2</sup> Create innovative products to support gut health with our ingredients, including Biotis® GOS-OP High Purity to provide effective dosages in smaller formats, such as tablets capsules and gummies. And Biotis® Fermentis, a one of a kind solution to support gut health and maximise performance in athletes and active consumers.

Explore the possibilities at [www.biotis.com](http://www.biotis.com) and visit us as Booth 3.0D40

1. Mousa et al., 2022; 2. Innova Top Ten Trends 2022



Health benefit solutions  
from  
FrieslandCampina  
Ingredients

# Fi Europe 2023

28 – 30 Nov, Frankfurt, Germany



**Europe**  
Frankfurt, Germany  
28-30 November 2023



**F**ood & beverage professionals are invited to step inside a microcosm of the ingredients world at this year's Fi Europe. With 135 countries represented, over 25,000 visitors and 1,200 exhibitors are expected to come together under one roof, resulting in a rich, immersive opportunity to experience the energy of invention and profitable connection.

This year's event blends real-world and digital interactions through the Fi Europe Event Platform, which will be open online pre- and post-show, extending the possibilities for exhibitors and visitors to discover new business opportunities, connect with the right people and be inspired by the latest industry trends and innovations. It also allows attendees to maximise their time in Frank-

furt and prepare for the on-site event by planning a personalised agenda, bookmarking sessions they want to attend and reaching out to suppliers to set up meetings.

The Fi Europe Conference (28-29 November) and Future of Nutrition Summit (27 November) will provide exclusive, paid-for content that cannot be accessed elsewhere. It is focused on addressing current challenges and identifying immediate opportunities in the F&B industry. Its stellar speaker line-up includes Kalina Dojkova, Senior Research Analyst at Euromonitor International, and Cyrille Filott, Global Strategist at Rabobank. Discover more about Fi Europe by visiting the website at <https://www.figlobal.com/fieurope/en/home.html>

### **Myco:** Plant protein has broken into the mainstream

A trailblazer in the development of next-generation plant proteins, MycoTechnology offers a line of plant proteins including FermentIQ PTP – a pea and rice protein blend fermented by mushroom mycelia to deliver superior performance and nutrition. Providing all essential amino acids, it has a PDCAAS (Protein Digestibility Corrected Amino Acid Score) of 1.0 for ages 3 and above. Its unique fermentation process also enhances digestibility, enabling 99.9% of the protein consumed to be easily digested. As a result, FermentIQ PTP offers a nutritional value competitive with animal and soy proteins.



Myco's has developed a pea and rice protein blend fermented by mushroom mycelia (photo: Julianna Nazarevska-Getty Images)

### **Nordmann:** Salt and sugar reduced plant-based products

Nordmann offers a continuously expanding portfolio of products addressing the plant-based trends and therefore support its customers creating food and beverages products meeting the customers' expectations. One focus at Nordmann's booth will be on new concepts – such as for reducing salt and sugar and using plant-based proteins alternative for healthy nutrition. combines both advantages – i.e. it is suitable for cooking and whipping.

### **Uelzena:** New drying plant opens possibilities

With the start of operation of a new state-of-the-art spray drying plant "Tower 12", Uelzena has further strengthened its core competence as one of the leading contract spray dryers in Europe. The new plant is designed for the spray-drying of infant food components such as vitamins and minerals under high-care conditions.

### **Chickpea protein isolate** in dairy alternatives

FoodTech start-up ChickP Proteinwill present prototypes of chickpea-based cheeses at Fi. The company will display a savory platter of a range of soft, cream, and firm cheese analogues, all crafted using its proprietary 90% chickpea protein isolate. The creations boast the same sensory characteristics of dairy-based cheeses, fully mimicking their appealing aroma, texture, and flavor.



### **Hydrosol:** A new take on popular classics

Hydrosol focuses on the bestseller vegetable-based fat cream. Vegetable fat cream is by far the most popular category on the Hydrosol website. Cooking and whipping cream based on vegetable fat is more durable, offers cost advantages compared to conventional cream and, moreover, vegetable fat is usually available at any time. The end products are more stable and convince with individual properties. With the stabilising and texturing systems from the Stabimuls ICR range, manufacturers can produce whipped cream that has a significantly higher whipping volume and a firmer foam structure than classic cream. The systems from the Stabisol Vega range produce cooking creams with a flexible fat content of 10-30 per cent. These are heat and acid stable and do not flocculate even when alcohol is added. In addition, there is a variant that combines both advantages – i.e. it is suitable for cooking and whipping.

At Hydrosol, everything (dairy-related) revolves around vegetable-based fat creams (photo: Hydrosol)

**Fraunhofer:**  
Tailor-made plant-based food ingredients

Fraunhofer Institute for Process Engineering and Packaging IVV together with Fraunhofer Institute for Molecular Biology and Applied Ecology IME will be explaining how food ingredients can be made from plant-based and alternative protein sources. The institutes will be presenting current research topics in the fields of ingredient extraction and food development.

Fraunhofer IVV has drawn on its many years of experience in the development and application of plant proteins to set up a protein database. This allows the institute to support companies in selecting the right plant proteins for their food innovations quickly and accurately, and to then guide the developments along the entire process chain.

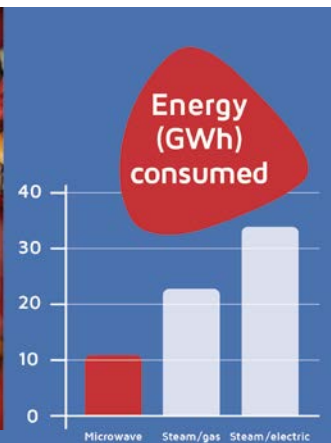


Fraunhofer IVV has used its many years of experience in the development and use of plant proteins to build up a protein database (photo: Fraunhofer IVV)

**SAIREM:** Disinfection with microwave and radio frequency technology

SAIREM, a specialist in industrial microwave and radio frequency solutions, presents systems designed to decontaminate various products such as powders, spices, peppercorns, flour, nuts and more. In addition, these systems can also be used to decontaminate plant-based foods and ingredients such as cereals and pulses.

The systems are suitable for the production of trendy products such as plant-based protein alternatives. The microbiological load of end products is reduced by 4-5 log.



Ingredients can effectively be disinfected using MW technology (photo: SAIREM)

Source: ALLICE



## ofi: Capacity increase

ofi, a global provider of naturally good food and beverage ingredients, has increased its ingredient manufacturing footprint by adding significant capacity to its dairy production facility in Johor, Malaysia with the commissioning of a new milk powder dryer, whilst also expanding its integrated dairy Ingredient Excellence Center ("IEC"), servicing customers across the Middle East, Africa and Asia. The enhancements to the Johor processing facility's capabilities will more than double the production volume of functional dairy ingredients and fat filled milk powder made per year.

ofi has increased its ingredient manufacturing footprint (photo: ofi)



## HANDTMANN

### DS 552 latest depositing technology for dairy products

An innovation in the area of depositing is the depositing system DS 552. The DS 552 depositing system is a valve-free, high-performance depositing system for the precise and safe dosing of fluid, pasty to viscous filling products. A wide variety of products from the dairy sector are dosed onto up to 24 lanes with accuracy to the gram. A continuous process for the industrial production on dough sheet systems, in thermo-forming packaging machines or tray sealers.

By means of continuous product ejection or continuously adjustable portion sizes of 5 to 500 g, the automatic dosing process can be flexibly expanded from 2 to 24 lanes. The innovative, valve-free dosing principle allows a production output of up to 200 cycles per minute. It is therefore the perfect economic solution for high industrial applications and performances. The DS 552 depositing system is, above all, characterised by its accurate-to-the-gram dosing of a wide variety of products, from fluid, pasty or viscous to chunky. The patented, servo-driven flow divider in the depositing system ensures a constant product flow onto several lanes without pressure fluctuations, resulting in most accurate weights and optimal product appearance in every single lane. The DS 552 provides direct, multi-lane and flexible dosing for a wide range of products and types of containers such as depositing on dough sheet systems,

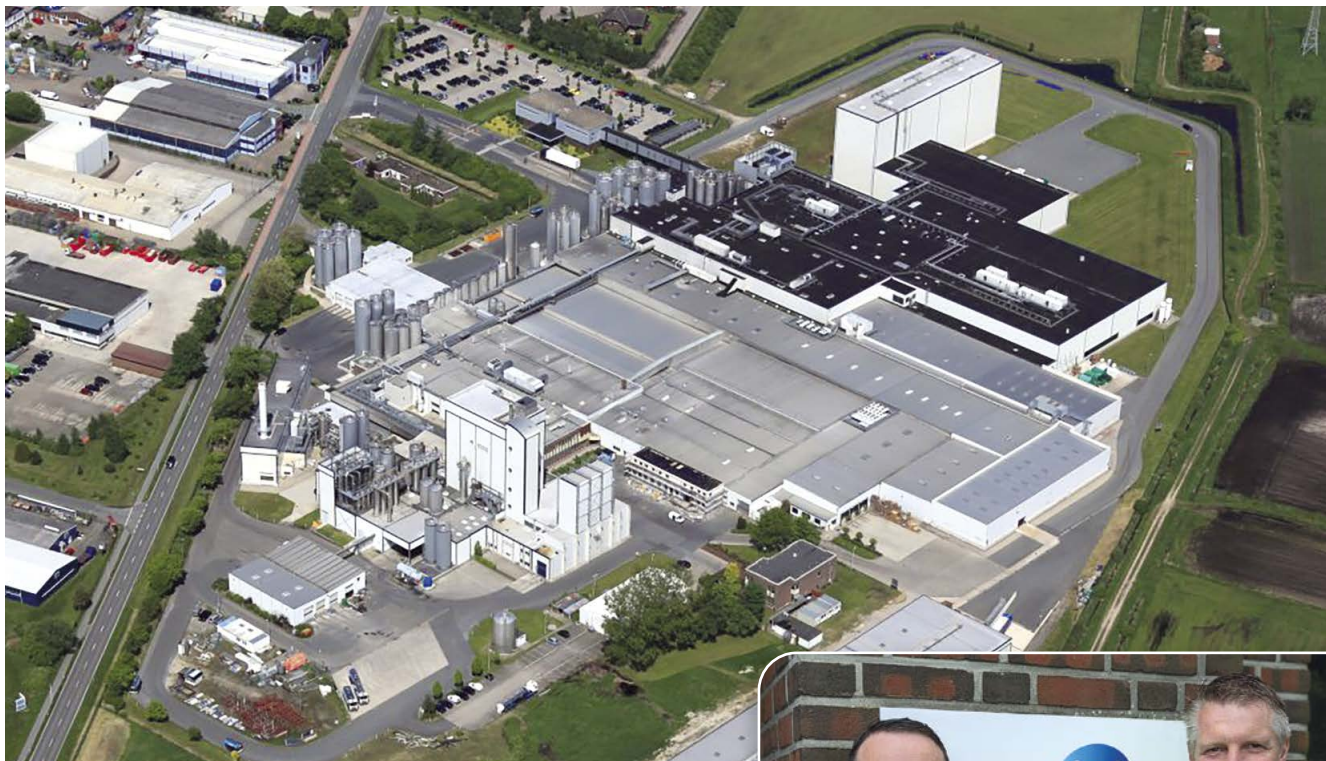


DS 552 depositing system for a wide variety of dosing processes (photo: Handtmann)

in thermo-packaging machines or tray sealers. It also offers a large selection of dosing nozzles for a wide range of products with accurate-to-the-gram and exact dosing in first-class product quality. Additionally, hygienic dosing with benefits in handling is guaranteed. Thanks to the valve-free dosing principle, no safety housing is required, which ensures easy access to the system. The modular system design and the use of different dosing nozzles thus facilitate quick product changes, reduce set-up times and enable fast and impeccable cleaning.

# Heat sources supply heat sinks

DMK makes Edeweicht plant significantly more energy efficient



*DMK has made the Edeweicht cheese factory even more energy efficient (photo: DMK)*

**B**uilding on a project to improve the energy balance of the Altentreptow cheese dairy, DMK has now also made the Edeweicht cheese plant significantly more energy efficient. Replacing steam with hot water and tapping waste heat sources in the plant has made it possible to reduce natural gas consumption by a good 10% a year. Significantly more than 4,500 tons of CO<sub>2</sub> are saved - forecasts currently even assume more than 5,000 t of CO<sub>2</sub> savings per year. In addition, an EU research project is currently underway that could significantly push the saving of drinking water at the Edeweicht plant. IDM was on site.

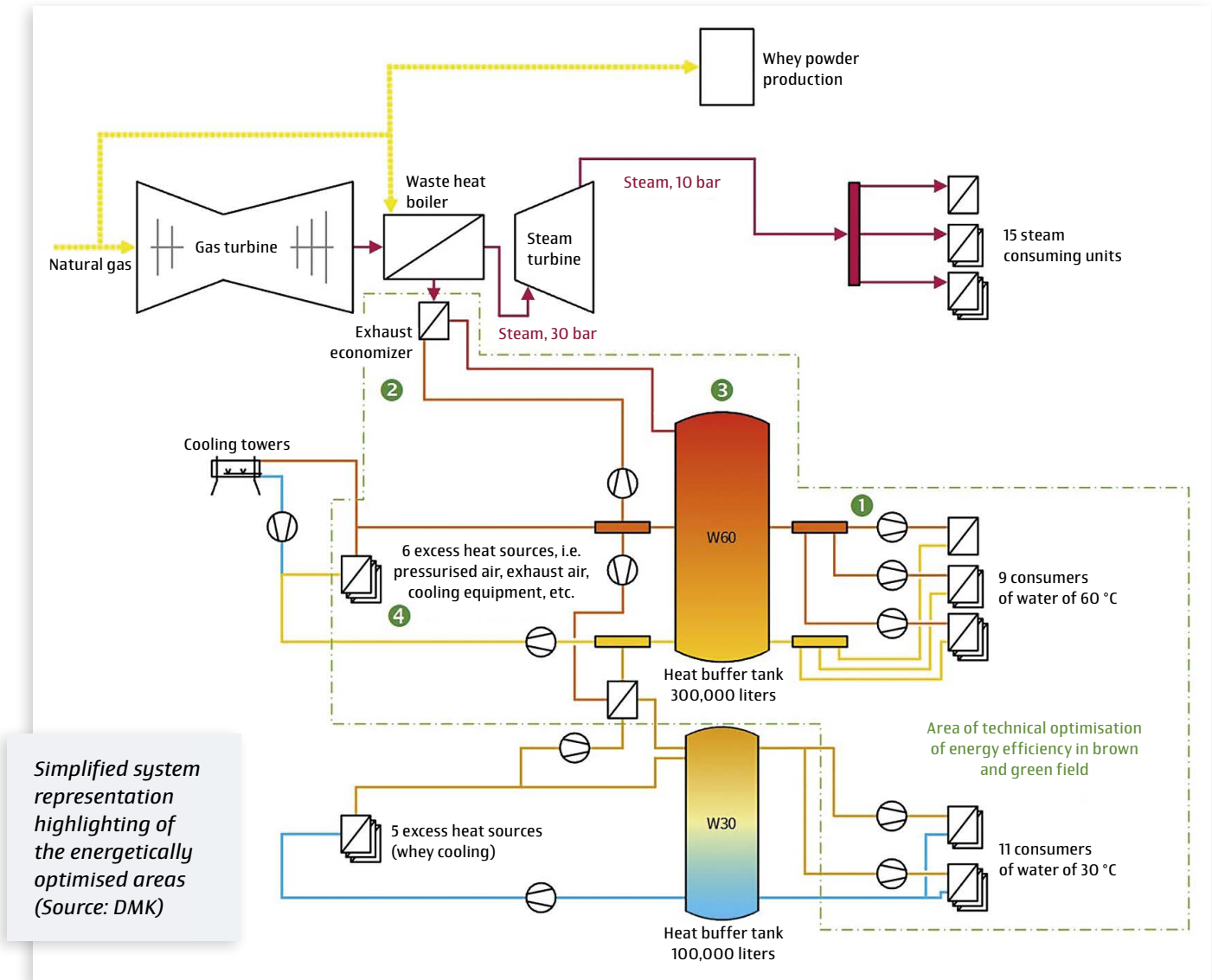
"Up to now, energy-saving projects have often focused on individual technical measures within the infrastructure. We have now taken a different approach and looked at the energy-relevant processes within the production sequences in order to identify energy sinks and sources and to use surplus energy. And we did this in an intelligent link across the entire plant," explains Lars Dammann, Head of Environment, Health, Safety & Security at DMK.



*Dennis Teipel (left) and Lars Dammann want to tap further heat sources at DMK's Edeweicht cheese and butter plant (photo: IDM)*

## Hot water preheats everything

The DMK plant in Edeweicht comprises three cheese factories, a butter factory (now the only one within the DMK Group) and a department for the production of whey concentrate and whey powder. Over one billion kg of milk are processed, from which cheese, whey powder and butter are produced. Since 2010, the site has been supplied by a gas-fired combined heat and power plant, which supplies heat and 98% of the electricity required. A



heating coil designed for 10 - 30 °C was available at the start of the new efficiency project; it was supplemented by another W60 (60 °C) heating coil to make better use of the waste heat flows. They are now used for preheating in a whole range of processes such as washing water for cheese production, ventilation or air heating for ventilation systems and the drying tower, cream tempering, CIP, etc. Steam is now only used for reheating to the required temperature. The heat exchange takes place directly on site via water against water. A 300 m<sup>3</sup> tank with three water layers (30 °C, 45 °C and 60 °C) serves as the central heat buffer. Since the water is constantly being fed into and out of the buffer, there is a good overall balance for the entire operation, especially since the demand for pre-heating is staggered over time.

A new low-temperature economiser was also installed as part of the project, which can utilise the exhaust gas heat from the gas turbine much better. This alone enabled DMK to increase energy efficiency by 15%, reports Dennis Teipel, Energy Officer in Edeweicht. Furthermore, the cooling tower at the evaporator are now used for heat recovery.

### AI support

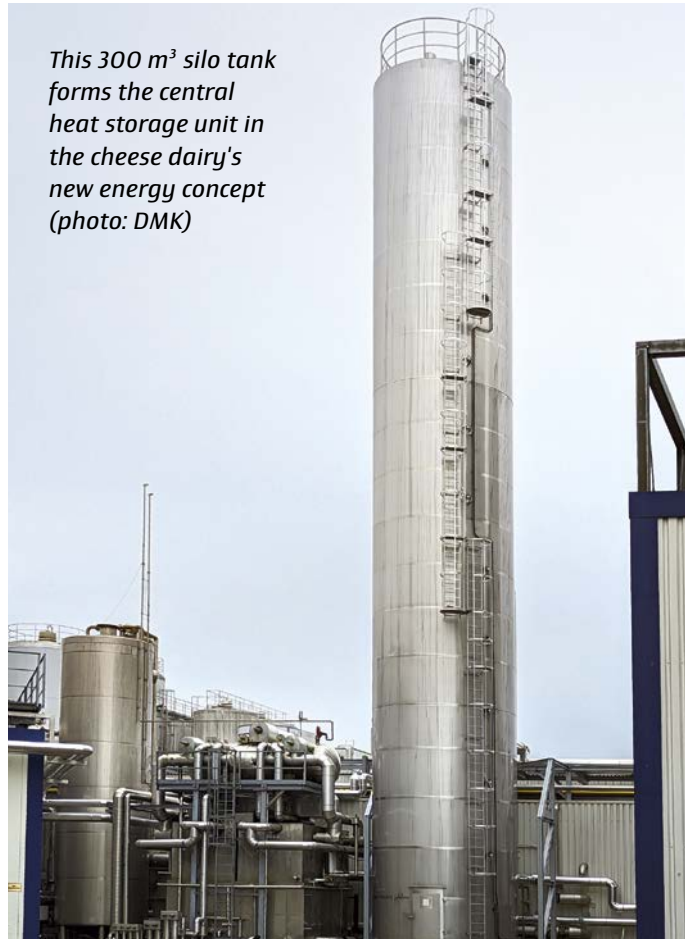
In order to find heat sinks and sources as well as the corresponding times, DMK, together with an energy consulting company, collected data from 4,000 measuring points from 70 control systems in Edeweicht over a period of one and a half years and evaluated them using AI. DMK contributed the know-how about the processes, while the energy consulting company was responsible for the physical and mathematical tasks. A total of € 5.5 million went into the project, including technology and hardware. DMK received a 50% grant from the German Federal Ministry of Economics and Climate Protection for this, as it is a lighthouse project for the entire dairy industry. Mr Dammann puts the ROI for DMK at just over four years. In the first half of 2023, DMK Edeweicht achieved 11.6 GWh of gas savings and 2,600 t of CO<sub>2</sub> reduction. For the year as a whole, 20 GWh less gas is expected to be purchased, corresponding to approx. 4,500 t CO<sub>2</sub> savings. In a next step, further heat sources and sinks are to be integrated in Edeweicht.

"We will now transfer the concepts we have developed in Edeweicht to other of our plants," concludes Lars Dammann. "During the project period, heat pump technology was not yet an issue for us; it has only recently taken a leap forward. But we will definitely include it in upcoming DMK projects."

**Pilot project B-Water smart**

The Edeweicht cheese dairy is located in the north-west of Germany, a region that is increasingly suffering from drought. The local supplier has long since signalled that supplying the plant with fresh water will reach its limits at some point. This prompted a project to find out whether and how the large quantities of vapour produced during the evaporation of whey can be treated in such a way that they can ultimately replace fresh water. The project was included in the EU programme "B-Water Smart" as one of seven so-called Living Labs across Europe.

Together, DMK, Envirochemie, IWW Zentrum Wasser and the water supplier OOWV are working on a process that purifies vapour condensate into fresh water to the new, stricter German standards. The condensate first passes through two biological stages before being fed into a cascade of membrane filtration processes and disinfected by UV. For this purpose, a pilot plant in two containers was set up on the factory premises, with which about 120m<sup>3</sup> of vapour condensate are treated per day. The goal is to process 600,000 m<sup>3</sup> of vapour condensate per year after official approval – talks are already underway. This amount would substitute about 40-50% (0.4-0.5 million m<sup>3</sup>) of the current fresh water demand.



*This 300 m<sup>3</sup> silo tank forms the central heat storage unit in the cheese dairy's new energy concept (photo: DMK)*



*Test plant housed in two containers for processing evaporator condensate into drinking water (photo: IDM)*

# Increased quality, reduced product loss

Italian dairy opted for in-line control

*The rugged InPro 7108 conductivity sensor provides accurate measurements in real time (photo: METTLER TOLEDO)*



Centrale del Latte di Roma, Rome's biggest dairy company, needed to prevent sub-standard milk entering their production chain. They also wanted to reduce losses at filling. In-line control provided the answer.

Centrale del Latte di Roma wanted to prevent milk that was contaminated or in some other way not meeting their standards, from entering their production chain. Achieving this would help ensure product quality always remains high. Although analysis of the incoming milk can be done in the lab, in-line measurement would allow rapid intervention if contaminated/out-of-spec milk was detected.

For this critical measurement, dairy managers selected in-line conductivity sensors from METTLER TOLEDO. Pure milk has a conductivity of around 6 mS/cm and a decrease or increase in the reading would indicate the milk is not in standard. The rugged InPro 7108 conductivity sensor is designed for exactly this type of application. It provides accurate measurements in real time, has a smooth, best-practice hygienic surface that resists fouling, and tolerates over 200 clean-in-place (CIP) cycles.

The installed conductivity sensors now monitor milk during download from tanker trucks, allowing any sub-standard milk to be diverted before it enters the dairy's storage vessels.

Founded in 1953, Centrale del Latte di Roma is one of Italy's largest dairy companies. Every day it receives over 350,000 liters of raw milk which it outputs as pasteurized and UHT milk, creams, yogurts and other products. Strict attention to quality, with control of the entire production process from the reception of raw milk to the packaging of the finished product, has always been at the center of the development strategies at the plant

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# Dairy innovations from animal-based to vegan

New cheese snacks made of re-shaped cheese

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Just like any food, cheese is also subject to change over time. It has always been considered a nutritious and indulgent staple food. Changing dietary habits, such as the trend towards snacking, increased health awareness and new consumer trends towards vegan alternatives, however, offer scope and thus market potential for innovations. One option, for example, is to use new cheese recipes and processing steps to create more intense and new taste experiences. An option for the growing target group of flexitarians are plant-based alternatives or a combination of plant-based and animal-based ingredients. Nevertheless, irrespective of the product recipe, above all new product shapes and combinations as well as smaller portion sizes offer enormous potential for product innovations in the cheese sector. Flexible process technologies for the re-shaping of cheese products create a host of opportunities for the implementation of new cheese product variations. The combination with the excellent functional properties of milk proteins allows the creation of cheese products with a wide variety of structures, shapes and textures. This includes different forms of presentation such as individually shaped snack products or innovative, co-extruded product compositions. As an experienced solution provider, Handtmann can offer in this context end-to-end production processes from product preparation to packaging. Grinding, heating and mixing systems for the production of initial products as well as modular and flexibly applicable system solutions for portioning, forming, co-extrusion and dosing are the foundation for this.

## Production processes for the production of cheese and cheese alternative snacks

Different types and varieties of cheese are suitable as starting material for the production of innovative cheese snacks using Handtmann process solutions. This includes hard and semi-hard cheese, cream cheese, processed cheese and curd, but also vegan cheese alternatives. In a first step, the initial products are produced. This step involves grinding and mixing technology or emulsifying and heating methods, depending on the starting material and processing temperature.

## Production and preparation of the cheese products

Hot and cold initial products for cheese snack products can be produced using different Handtmann Inotec technologies. Automatic processing units and universal processing units are ideally suited for simultaneous heating, mixing, grinding and emulsifying during the production of hot initial products. The compact, closed overall systems are used for pasty and fluid products such as processed cheese and vegan cheese alternatives. Chunky raw material can be ground in the processing tank and mixed with dry materials and liquids. The mixture can be heated by direct steam injection or optionally heated or cooled indirectly with a double jacket. An additional vacuum system allows the product mixture to be evacuated and liquids or dry substances to be sucked in. After the cooking process, the product can be run through an integrated emulsifier. This is used for emulsifying, homogenising, pumping



*Re-shaped cheese products made using Handtmann production processes (photo: Handtmann)*

and discharging the product into downstream filling and portioning systems. Automatic processing units are equipped as standard with a CIP preparation.

In addition to automatic processing units and universal processing units, mixing technology is also applied, which includes various spiral, paddle and worm shaft mixer types, depending on the application. A particularly gentle yet efficient mixer type forms part of the VarioMix mixing system. This system works with interacting, independently controlled mixing spirals without centre shaft. These special mixing spirals allow for both gentle and highly intensive mixing and thus cover a wide range of applications for the system. The VarioMix system offers automatic dosing of water

and powder, heating via heated jacket and steam injection as well as a cooling function via the injection of cryogenic gases. The system can be operated under vacuum and features a usable volume of 350 to 4,000 litres. The VarioMix system can be used for the efficient production of both cold products, such as cream cheese or ground semi-hard cheese preparations, and hot cheese products at incredibly short mixing times.

### Further processing of the cheese products: pumps and portioning

The hot and cold products produced in a first step, can now be processed in different systems, depending on the desired product shape. This includes forming systems, co-extrusion systems,

## GEA

### MOBILE MINOR MM 100 Spray Dryer

GEA has added the MOBILE MINOR MM 100 to its MOBILE MINOR spray dryer portfolio. The spray dryer is equipped with the mechanical powder separator Cyclone CEE (Cyclone Extra Efficiency). This cyclone solution helps customers to overcome challenges in spray drying such as smearing due to powder settling in the cyclone as well as abrasion and the resulting costly production downtime.

The MOBILE MINOR MM-100 can operate with a process gas flow rate of up to 100 kg/h at an inlet temperature of 200 °C. For many products, this means a 30 percent increase in powder production compared to previous models. High-performance HEPA filters are available, for example for baby food, as well as powder collection tubes in sizes from 250 ml to 3500 ml.



MOBILE MINOR MM 100 spray dryer (photo: GEA)



*Variety of shapes achieved by re-shaping cold cheese products using the FS 510 forming system (photo: Handtmann)*

sausage lines and depositing systems. They all have in common that they are operated in combination with a Handtmann vacuum filler acting as a pump and control unit. The vane cell feed system deployed in Handtmann vacuum fillers processes both cold and hot products with maximum flexibility. Whether fluid, cuttable, homogeneous, chunky, milk-based or vegan, volumetric portioning is always accurate to weight. A mobile heating, available as optional equipment, or heated hoppers enable the processing of hot products up to 90 degrees Celsius. This is particularly relevant when processing and forming pasta filata stretched-curd products or hot mozzarella cagliata, but also in dosing applications of melted processed cheese products, cheese alternatives and plant-based cheese substitutes. Another typical use case for heated hoppers and the mobile heating unit would be the filling of hot cheese products into artificial casing. With the VF 800 D (DAIRY) model, Handtmann also offers what is currently the only vacuum filler worldwide that meets the strict requirements of 3-A Sanitary Standards, Inc. and is authorised to carry the 3-A symbol. This model, available in five performance variants, boasts details such as a closed hopper, product feed e.g. via a closed line, specially treated surfaces for reliable feed and optimum hygienic design, which have been perfectly adapted to the requirements of dairy applications.

### **Innovative products based on re-shaped cheese**

Handtmann process solutions offer a wealth of possibilities for innovative products made of cheese. The cold re-shaping of cheese in particular opens up interesting opportunities for product development. By way of example, a number of snack products based on re-shaped cheese are presented in detail below together with the relevant process technology applied in production:

### **Snacks made of re-shaped semi-hard cheese**

The snacks made of re-shaped semi-hard cheese are produced without heating the cheese product in order to preserve the characteristic flavour of semi-hard cheese. Optionally, the snacks can be produced with or without further additives and flavouring ingredients. The underlying re-shaping process allows, for example, the processing and thus upgrading of cheese offcuts left over from the slicing process into snacks. The products can be formed into many different geometries and a wide variety of products. They can be positioned in retail as healthy, natural snacks to-go off the refrigerated shelf or in the food service and gastronomy sectors.

The Handtmann production process comprises a grinding system (optional), a mixing system (optional), a vacuum filler, an inline grinding systems and a forming system. The downstream interface is a drying/smoking chamber (optional) or a packaging line. In a first step, the semi-hard cheese is pre-ground, and can in a second step be mixed with other ingredients, such as spices, nuts, dry fruits, etc. in a mixing system. An interesting fact in this context is that ingredients can be combined with cheese that cannot be added to the curd in the classic cheese-making process. Pre-grinding can also be omitted if ground pieces of cheese, such as cheese offcuts from the slicing process, are used and no further ingredients need to be mixed in. The cheese product mix or the cheese offcuts are then conveyed into the hopper of the vacuum filler, from where they are pumped into the FS 510 forming system. In the forming system, the prevalent pressure compresses the ground cheese product to form a homogeneous, cuttable cheese product once again. In case of cheese offcuts, an inline grinding system for grinding and homogenisation is mounted between vacuum filler and forming system. An integrated, servo-driven flow divider then



divides up the cheese product onto 2 to 24 lanes. The subsequent step of forming is carried out in a wide variety of cross-sections using a forming die or forming tubes. Product separating is continuous directly at the outlet of die or forming tubes using a travelling wire cutter or blade, depending on the product. Maximum production output is up to 250 cuts per minute.

The individual portions snacks are deposited in multiple lanes directly onto racks, trays or belts. When deposited onto racks or trays, the containers are then manually transferred to tray trolleys. Post-treatment may include the optional steps of cold smoking or light drying. Finally, the snack products can be packed. The snacks shown have a portion weight of 15 g and a portion length or portion diameter of 7 mm. In 4-lane production of products with different cross-sections, such as rounds, hearts, pretzels, etc., a production output of 360 to 900 kilograms per hour can be achieved.

### Mozzarella sticks made of re-shaped mozzarella

Mozzarella sticks, similar to semi-hard cheese snacks, are produced by re-shaping pre-ground mozzarella cheese. As an option, the cheese product can be mixed with further additives. Forming into sticks is performed via forming tubes or dies. In retail, they are available as frozen convenience products or as frozen food service and gastronomy products.

The Handtmann production process comprises a grinding system (optional), a mixing system (optional), a vacuum filler, an inline grinding systems and a forming system. The downstream interface is a breading and deep-frying line and a freezer with packaging line. In a first step, the mozzarella cheese is pre-ground, and can in a second step be mixed with stabilisers and other ingredients in a mixing system. Pre-grinding can also be omitted if no further ingredients need to be mixed in, in which case an inline grinding system is mounted between vacuum filler and forming system

#### *Breaded mozzarella sticks* (photo: Handtmann)



for homogeneous grinding of the cheese product. In the forming system, the prevalent pressure compresses the ground cheese product (without further additives) to form a homogeneous, cuttable cheese product once again. As already described above for semi-hard cheese snacks, an FS 510 forming system then forms the cheese product in multiple lanes into sticks of different diameters and lengths and automatically deposits them onto a belt. The spacing between portions and the number of lanes are variable and adaptable to the downstream breading line. The belt transfers the formed cheese sticks to the downstream breading line. After forming, the unbreaded sticks in the example have a portion size of 12 g, a portion diameter of 13.3 mm and a portion length of 80 mm in 6-lane production.

### Wheels made of re-shaped hard cheese

Even entire cheese wheels can be produced from pre-ground cheese (including hard cheese) following the principle of re-shaping without heating described above. A special forming system for cylindrical end products is used, which is capable of producing portion sizes of 200 to 3,000 grams and diameters of approx. 80 to 200 mm at a production output of up to 30 portions per minute. Scope is provided by recipe variations with fruits or other ingredients.

### Re-shaped cream cheese

The FS 510 forming system can form cream cheese and cream cheese preparations into a wide variety of shapes in multiple lanes just as well as it does with semi-hard cheese, hard cheese or mozzarella. Examples would be cream cheese cubes as frozen topping (portion weight 1 g, 24-lane at a production output of 480 kg/h) with direct depositing onto belt and transfer to an individual quick freezing system, cream cheese rings as convenience product (approx. 50 g) for downstream coating with spices and goat's cream cheese or skimmed goat's cheese curd re-shaped on 8 lanes into rolls of 160 g, including direct depositing onto racks, e.g. for maturing with edible mould or as a fine cheese snack.

### Dosing, co-extruding and more

In addition to forming systems for the re-shaping of cheese products, Handtmann also offers other systems with potential for innovation in the production of snacks in various shapes. This includes co-extrusion systems, clipper applications, sausage lines and depositing systems flexibly combined with a vacuum filler, designed as a compact system solution, automated line solutions with synchronised interfaces to upstream and downstream process steps or customised processing system, depending on the respective application.

Depositing systems are used for the manual to fully automatic single- to 24-lane filling of hot and cold cheese products and alternative products into different containers, such as jars, trays, cans and thermoformed packaging. An application example would be the production of a vegan cheese substitute in blocks for slicing. The Handtmann process comprises an automatic processing unit, a vacuum filler and a depositing system. Downstream interface is a thermoforming



*Cheese snacks produced by re-shaping semi-hard cheese using the FS 510 forming system (photo: Handtmann)*

packaging system. In the automatic processing unit, the powdery, fluid and possibly firm recipe components are ground, mixed, emulsified and at the same time heated. This hot product is then pumped into the hopper of the vacuum filler and dosed into the thermoformed packaging or other moulds using the DS 552 depositing system. The multi-lane DS 552 depositing system allows precise dosing into the corresponding containers on 2 to 24 lanes.

Handtmann sausage lines allow the production of cheese sausages with or without co-extruded filling into prefabricated sausage casing (e.g. peel-off casing). The initial product would be hot and cold cheese or processed cheese preparations or vegan cheese substitutes. Handtmann ConPro systems are used for the continuous production of cheese sausages in vegan, edible alginate casing. Co-extrusion technology can also be used for products from several different filling products in a single process step, e.g. filled or multi-layer products.

Handtmann vacuum fillers can also be operated in combination with clippers. This processing combination is used, for example, for the production of processed cheese slices and grilled cheese rounds as trend product to be consumed hot.

## HIGHLY RECOMMENDED

### World market for mozzarella cheese 2000-2030

The world cheese market has been expanding dynamically for the last three decades with growth of production, export, and consumption in the established dairy markets. Production and import of cheese have also increased in the emerging dairy markets in South America, Asia, Africa, and Russia.

A large part of the overall growth is caused by the fast-growing production of fresh cheese and especially mozzarella cheese.

The objective of a new report by PM FOOD & DAIRY CONSULTING is to analyze the world market for fresh cheese with special focus on mozzarella. This includes global production and consumption in the different regions of the world. Production and consumption per country is also analyzed where there are reliable statistics. In some countries the figures are best estimates made by PM Food & Dairy Consulting. The same is the case for trade figures for mozzarella.

The report also identifies the major producers of mozzarella cheese in the world. They are concentrated in Europe, North America, and Oceania. The companies are also analyzed and evaluated in relation to performance and future possibilities.

The report also includes analysis of the emerging market for plant-based mozzarella. Will the penetration of these

products become a threat for the traditional milk-based mozzarella or will it expand the overall demand for mozzarella. The reaction from the dairy industry will also be analyzed. Finally, the development in the world market for mozzarella cheese until 2030 is evaluated.

The most comprehensive report (checked by IDM editorial staff) is sold for €1,500, more info at [www.pmfood.dk](http://www.pmfood.dk)



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# ALPMA Connect

More than just an IoT platform



*“ALPMA Connect is to be expanded to become the central point of contact between us and our customers”*

Michael Müller, CEO ALPMA France



**A**t interpack 2023, ALPMA presented its IoT platform ALPMA Connect, a platform to support users of cheese-making equipment. The concept is designed to be much more comprehensive than a mere web-based solution and has already been implemented in France for two years. In addition, the platform is being used by selected customers in the rest of Europe.

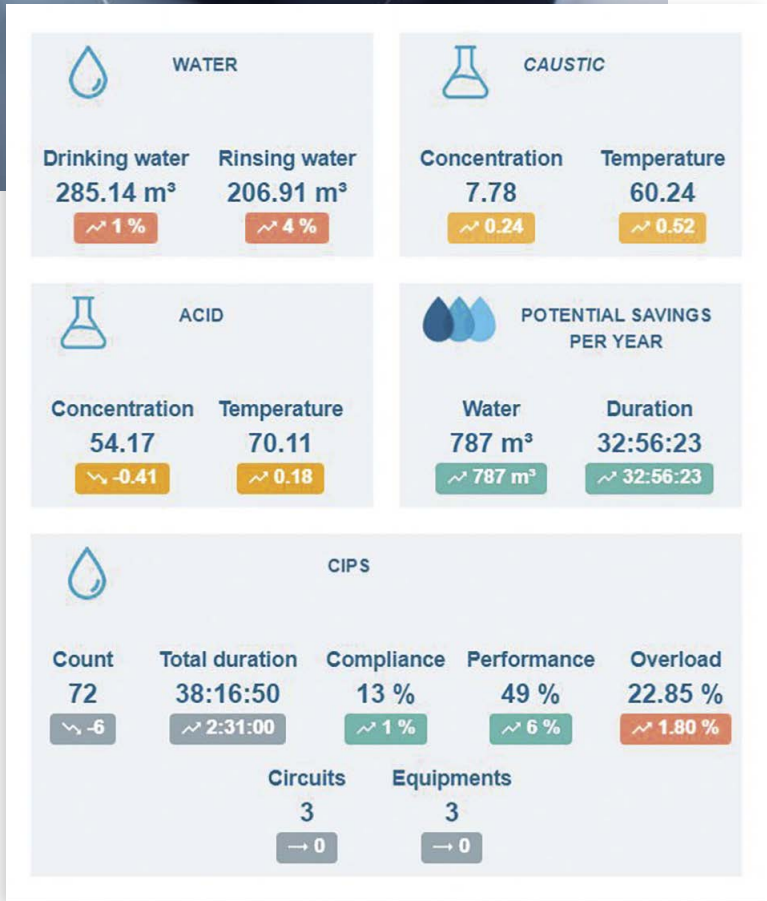
Michael Müller, Managing Director of ALPMA France, explains that ALPMA Connect is to be expanded to become the central point of contact between ALPMA and its customers. New machines already include the basic version of Connect; older machines can be retrofitted depending on the electronics installed. All service and spare parts processes, including video and chat functions, a dashboard overview of core functions and machine performance are already implemented in the basic variant. The main advantages are reduced waiting times and parts are visualised via 3D. In addition, the platform enables the evaluation of machine data without the need for additional solutions.

## Higher productivity

For customers, ALPMA Connect offers much more: For example, ALPMA ECO CLEAN analyses the cleaning of the machines. Operators are informed about optimisation possibilities, e.g. that one of the various cleaning phases can be shortened in order to save resources. On the other hand, they are also warned if a cleaning process has been carried out incorrectly.

OPTIheight and OPTIview provide the production staff on site with information on how to optimally adjust the machines to each type of cheese to be processed. Overall, this increases productivity and packaging accuracy and reduces give-away.

Müller emphasises that ALPMA does not interfere with the customer's processes. There, the operators always have the final say, but they are supported in their decisions by ALPMA Connect by playing appropriate messages directly to the HMI.



### Expert knowledge

The algorithms behind ALPMA Connect are developed by the company's own industry experts. The data analysis is then carried out by a service provider based on ALPMA's specifications so that relevant and, above all, correct statements can be made in the end. Customer-specific databases are built up using the data stored and processed in a cloud. At the end of all these processes, there is always an increase in productivity, which of course goes hand in hand with sustainability.

ALPMA now wants to extend its Connect concept to the entire delivery spectrum, i.e. to the plants for cheese production and refinement as well as for the process-technical plants for membrane filtration.

# FMI

## The booming dairy snacks market



photo: Coppenrath

The global dairy snacks market is likely to be valued at US\$ 226 billion in 2023. Furthermore, with the rising consumption of dairy products globally, the overall sales of dairy snacks are projected to surge at nearly 6.1% CAGR between 2023 and 2033, reaching a valuation of US\$ 397 billion by 2033.

The dairy snacks market accounted for 20% of the total dairy market globally in 2023, and this number is expected to rise further due to increased snacking habits and consumer emphasis on including essential minerals and vitamins in everyday diet.

Dairy snacks are small meals composed primarily of milk products such as cheese, yogurt, and ice cream. They offer multiple benefits, including high nutrition and good taste. They have become ideal healthy alternatives to baked or fried snacks and confectioneries.

### Global dairy snacks market outlook

The dairy snacks market grew at a CAGR of 5.5% between 2018 and 2022. However, with the growing popularity of dairy snack products among people, the overall market is anticipated to expand at 5.9% CAGR between 2023 and 2033.

In recent years, sales of dairy snacks have seen a sudden surge due to the availability of creative, innovative, healthier products. Traditionally consumers used to buy snacks impulsively primarily due to their unique taste and flavor.

But as the emphasis on healthy ingredients increases, consumers prefer nutritious eatables. They analyze the ingredients of products and their benefits to health before making any purchase. This is expected to push the sales of healthy dairy snacks like yogurt bites, cheese slices, and nutritional smoothies during the forecast period.

Similarly, the accessibility of products containing proteins and probiotics is expected to increase revenue generation. Yogurt with essential proteins and different flavors has functional properties that strengthen the gut and build the immune system. Thus, it is expected to account for 35% of the dairy snacks market.

Consumers across the globe are snacking at least twice a day. This has opened many opportunities for snacking brands. Key players focus on developing products that eliminate the guilt of consuming unhealthy products by offering organic and nutritious snacks to help complete consumer health goals.

They also aim to offer nutritious, flavorful products in good quality packaging to extend shelf life. Different packaging variations are also available in the market that are convenient to carry and consume, like drinkable yogurt cartons, cheese trays, and yogurt pots.

Label-conscious consumers are reading labels and making smarter decisions based on the product's nutritional content. Low-calorie and sugar-free products packed in innovative packaging are expected to gain traction.

### Key trends driving the global dairy snacks market

A rise in consumption of ready-to-eat dairy products due to increase in spending capacity is expected to push the demand for dairy snacks in the market during the forecast period.

Today, consumers emphasize maintaining good health by consuming a balanced diet containing all the essential vitamins and minerals. As a result, demand for healthy, nutritious products, including dairy snacks, is expected to surge rapidly during the forecast period.

To fulfill consumer-specific requirements, key players are focusing on developing dairy products that are low-calorie, low-fat, and lactose-free. Thus, the availability of ready-to-eat healthy dairy products is expected to boost the growth of the global dairy snacks market in the coming years.

### Country-wise insights

**US:** As per FMI, the United States dairy snacks market is expected to reach a valuation of US\$ 58.2 billion in 2023, which is approximately 24% of the global meat snack market. Growth in the market is driven by rising consumer preference for organic nutritional dairy products and the strong presence of key dairy product suppliers like General Mills, Danone SA, and Unilever Plc., who are collaborating and developing new product variants to sustain a competitive market.

Similarly, changes in consumer lifestyles and consumer willingness to spend on healthy food products that are low-fat, no-sugar are expected to boost the demand for organic dairy products during the assessment years.

**China:** China is expected to be a promising market for dairy snacks due to its rapidly growing population, rising popularity of snacking, and increasing consumer spending on Western dairy products like organic saks and flavored yogurt.

Similarly, rising demand for clean-label products and an increase in transparency by key players to guarantee the quality of products are expected to boost the demand for dairy snacks across the country during the forecast period.

To this, the presence of many manufacturing facilities and the export of dairy products on a large scale is likely to boost sales in the coming years

Based on the factors above, the Chinese dairy snacks market is expected to reach around US\$ 16.05 billion in 2023, approximately 18% of the global meat snacks market.

**UK:** The United Kingdom dairy snacks market is poised to exhibit strong growth during the forecast period owing to the availability of different flavors in dairy products like milk, cheese, and yogurt, high levels of health awareness among people, and a growing shift towards healthy dairy products.

Similarly, increasing consumption of ice cream due to the availability of no-sugar and lactose-free variants supports market growth in the country.

The introduction of new products and innovation in packaging and labeling is expected to push the demand for dairy products even further during the forthcoming years.

### Category-wise Insights

Based on product type, currently, the cheese category accounts for around 45% of the total dairy snacks market. This can be attributed to the rising consumption of cheese-based snacks by consumers.



photo: Clayer



photo: Gerber

Over the years, cheese has become the most consumed dairy product globally. It benefits human health by containing calcium, protein, and other nutrients. Cheese can be added to many cuisines and snacks to add a peculiar flavor and texture.

Different types of cheese are easily available in the market. Due to its functional ingredients, it is marketed as healthy snacking food by many players in the market. Many brands focus on developing cheese and butter varieties with lower fat content but similar taste and texture.

### Competitive landscape

Dairy snack manufacturers are exploring new technologies and launching different snacks that fulfill consumer requirements for healthy food.

### Nestlé

Since its establishment, Nestlé has become one of the leading dairy snack brands in the world. The company continuously focuses on expanding its product offerings to provide consumers with better nutritional items.

For instance, in 2021, Nestlé launched new plant-based versions of some of its most-loved brands, including Milo, the world's leading chocolate malt beverage enjoyed in many Asian countries. In 2022, Nestlé constructed a new Nescafé coffee facility in Veracruz, Mexico. With a US\$ 340 million investment, the new plant in Mexico becomes Nestlé's largest coffee producer globally.

Nestlé's investment increases its market position and enhances its manufacturing capacity to fulfill rising customer demand for its goods as the current market leader in creamer and flavored milk. For instance, in September 2020, Nestle launched a Research and Development Accelerator to drive dairy product innovation. The Research and Development Accelerator, based in Konolfingen, Switzerland, offers a platform for startups, students, and scientists to use Nestle's unique dairy and plant protein expertise to quickly develop ideas from concept to commercialization.

The company recently launched a new youth entrepreneurship program to provide young innovators access to The Nestlé Entrepreneurship Academy and specific programs to help them expand their knowledge, develop new skills, and get experience. Nestlé is working toward a deforestation-free cocoa supply chain commitment by 2025. This demonstrates the company's ambition to pursue its forest-friendly mission and sustainably source 100% of its chocolate.

### Unilever

Unilever is one of the world's largest companies that offer a variety of consumer goods and plant-based meat and dairy alternatives. It is adopting various strategies to increase its revenue share in the market. For instance, in 2022, Unilever announced that it is launching two pilots to test warmer ice cream freezer cabinets, which are expected to reduce energy use and greenhouse gas emissions by approx. 20 to 30% per freezer while retaining the same taste and quality as regular freezers.

In February 2019, Unilever acquired the holding company of Graze, the United Kingdom's leading healthy snacking brand. Graze is an online snack retailer delivering natural food, flapjacks, cakes, and popcorn to residential homes or workplaces daily via post.

### Kraft Heinz

Headquartered in Pittsburgh, Pennsylvania, Heinz, an American food processing company, is another leading provider of dairy snacks. It is the first sauce brand to explore the possibilities of Pulpex's sustainable paper bottle packaging for its line of world-famous condiments by innovating its classic ketchup container.

In 2022, The Kraft Heinz Company and TheNotCompany, Inc., a leading food tech startup, established a collaborative venture to reinvent global food production and move toward a more sustainable future. The Kraft Heinz Company delivers excellent quality, outstanding flavor, and nutrition. The company recently launched snack Trios cheese snack packs that feature creamy cheese, rich dark chocolate, and sweet fruit.

These insights are based on a report on Dairy Snacks Market by Future Market Insights.



photos: Knorr, Layenberger



*The micro steam turbine enables Schwarzwaldmilch to generate electricity economically and highly efficiently (photo: Turbonik)*



# Fraunhofer UMSICHT/Turbonik

Schwarzwaldmilch relies on micro steam turbine

**S**chwarzwaldmilch uses a micro steam turbine developed by Fraunhofer UMSICHT institute and Turbonik GmbH for combined heat and power generation in its drying plant in Offenburg, thus tapping previously unused energy potential in the production process.

"Spray drying requires the use of heating steam," explains Dr Wilhelm Althaus from Fraunhofer UMSICHT. "The turbine developed by us and our spin-off, Turbonik, takes over steam expansion in the production plant instead of throttling through a valve. In this way, it additionally generates electricity very efficiently in a combined heat and power process, which displaces corresponding electricity purchases for the dairy." Turbonik managing director Martin Daft adds: "This sustainably saves energy costs and at the same time avoids high CO<sub>2</sub> emissions through optimum fuel utilisation."

## Generating electricity economically

The jointly developed micro steam turbines enable steam-using companies to generate electricity economically and highly efficiently – especially with small amounts of steam. With up to 40 percent less fuel input than with comparable turbines, an electrical output of up to 300 kW can generate up to 2.4 GWh of electricity

per year and, depending on the fuel, save over 600 tonnes of CO<sub>2</sub> emissions per year. The turbines are so small that they fit on the footprint of a Euro pallet and can be easily integrated into existing infrastructures due to their small size and low weight.

## Water as a lubricant

For applications in food production, special requirements apply to safety and consumer protection. "High steam quality and purity in all units and systems is therefore imperative," says Martin Daft. "Our micro steam turbines rely on water as a lubricant in their bearings and are thus completely oil-free. In this way, there can be no impurities in the steam." This complete absence of oil in the system is not only important in terms of steam quality, he says, but also includes considerable ecological and economic advantages because oil changes and checks, as well as the corresponding costs, are no longer necessary.

Stefan Voigt, head of central project planning at Schwarzwaldmilch, comments: "The turbine is convincing due to its compact design as well as high operational reliability through redundant operation to the classic steam pressure reduction. We have had positive experiences with the technology and are already thinking about further possible applications in the company."



## Clear winner in pump test

Certa Sine pumps maintain high quality cheese curds at Swiss mozzarella producer



**E**mmi is the leading manufacturer of high-quality dairy products in Switzerland. At its Dagmersellen location in the canton of Lucerne, Emmi produces milk powder and cheeses such as mozzarella, ricotta and cottage cheese.

### Modernisation of production

As part of an ambitious sustainability strategy, Emmi has set itself the goal of using raw materials as efficiently as possible to reduce food losses to an absolute minimum. In the course of mozzarella production line modernisation, the focus was on the transfer of the cheese-curd-whey mixture from the cheese vat to the drain table.

The cheese-curds-whey mixture was washed into tubs by gravity, a process which was both time consuming and labour intensive, so an efficient transfer pump was sought.

Emmi carried out a series of comprehensive tests using a number of pump types including centrifugal, air operated diaphragm alongside other positive displacement pumps, all with the same criteria. Amongst the pumps trialled was a Certa Sine™ pump, a sinusoidal pump from MasoSine.

### Goal: Gentle lift pump for maximum product yield

The pump Emmi sought needed to combine the following characteristics:

- » Flow rate of approx. 10,000-20,000 liters per hour
- » Clean in place (CIP) capability for efficient cleaning
- » Low shear pumping of the delicate cheese curds-whey mixture

High shear forces during transfer can degrade the curds and create excessive cheese fines, which in turn reduces the product yield.



*The Certa Sine pump during tests as Emmi pumping curd from the cheese vat to drain table*



*Curds after pumping: Sine pump top left, air operated diaphragm pump top right, centrifugal pump bottom left, twin-screw pump bottom right*

For each pump tested, the fracture condition before and after the pumping process was visually analysed and the whey fat content measured. In order to further quantify the product losses caused by the pumping process, the cheese fines produced in the whey were collected and weighed. Analysis of the pump results quickly revealed significant cheese curd quality differences.

Although purchase costs were lower for some of the pump types tested, the reduction in product yield due to curds and whey degradation using those pumps, quickly convinced Emmi that the Certa Sine pump was superior for their application. The Certa Sine pump 500 model had the lowest fat loss in the whey and the curds remained virtually unchanged after transfer.

### **Product-friendly sinusoidal principle for high viscosities**

Florian Walter, Product Manager at MaoSine commented "The Certa Sine pump design has been specially developed for the most gentle transfer of highly viscous and shear sensitive ingredients in the food and beverage industry."

### **Lowest total cost of ownership and rapid payback**

By increasing cheese yield, the Certa Sine pump trailed at Emmi added extremely low total cost of ownership to the benefits experienced and they consequently chose to use two Certa 500 pumps in the production of their popular mozzarella cheese.

# The Future is Dairy!

EDA Annual Convention in Brussels, 9 Nov 23



*"As EDA we will hammer in the three pillars of the European success story for us: the Single Market, an ambitious trade policy and the Common Agricultural Policy"*

Giuseppe Ambrosi, EDA President

In his welcome address to EDA's (European Dairy Association) first ever Annual Convention in Brussels, EDA President Giuseppe Ambrosi highlighted on 9 November 2023 the event's motto "The Future is Dairy!" At European level, the dairy industry, that stands fully aligned behind the Green Deal objectives, perceived the last years as a time of missed opportunities. "We did not see the EU Commission acting on the basis of core demands to the lawmaking process: a science based, impact assessed approach and a certain level of stakeholder involvement", Ambrosi said.

EDA and its members want to shape and build the dairy future, because Europe is a global dairy super power: in excellence and nutrition, in production, in trade and in sustainability. "We will have to make dairy heard in the political space in Brussels from the very beginning of the next legislative term in July 2024. We simply cannot afford five more years in defense", Ambrosi added. Ambrosi said: "As EDA we will hammer in the three pillars of the European success story for us: the Single Market, an ambitious trade policy and the Common Agricultural Policy, that supports the sustainability transition, we're in".

The opening session of the EDA conference saw an impressive line-up of CEOs of important dairy companies and groups. They all agreed that there is definitively a future for dairy given a growing world population and Europe being one of the world's most favourable areas for dairying. According to new figures from FAO,

the protein gap will grow to 33m tons until 2050. This will open tremendous opportunities for dairy that provides nutrition at affordable price. However, dairying as a whole is under heavy attack from politics, NGOs, media and self-proclaimed "experts". Lactalis COO Thierry Clément said: "How can we tolerate that there is "milk" in the shelves that is not milk? How can we tolerate that politics is putting European security of food supply at risk? We can prove that dairy is good, we just need to make more noise. We can no longer accept fakes and lied arguments".

All the CEOs agreed further that Europe delivers dairy at the comparative lowest footprint of production and with superior product quality. Political efforts to bring down the number of milk cows may fail in the end. As FrieslandCampina CEO Jan Derck van Karnebeek said, a better solution might be a matter of introducing standards that move the whole production further in sustainability by gradually lifting the floor. The gap between F/C's 10,000 farms in terms of CO2 footprint is 30 - 40%, so there is still a lot to gain.

A requirement for a sustainable future of European dairy is, however, that farmers are confident and earn enough to be able to invest in the sustainability of their production. The industry itself needs to embed sustainability into its business models; sustainability today is not a side-business but rather the core. Politics need to take care for a suitable framework for dairying to evolve into even more sustainability. Carbon certificates should only be traded



The CEO's podium at the EDA 2023 Annual Conference was made up by (from left) Thierry Clément, Groupe Lactalis, Peter Giørtz-Carlsen, Arla, Louis Ska, Solarec, Charles Brand, Tetra Pak, and Jan Derck van Karnebeek, FrieslandCampina (photos: IDM)

within the dairy sector, van Karnebeek said, as the market is still in an early stage and dairy carbon sequestration should not end up greenwashing an oil company.

Peter Giørtz-Carlsen, COO of Arla, said that the principles of the EU Single Market need to be protected as well as trade agreements need to be made to make sure that EU dairy can be exported in future. He was seconded by Clément who said that national protection like in France or Italy is stupid as industry and farmers are shutting themselves off from the opportunities of a larger market that only gets fractionated by such measures. Politics, the top managers said, needs to listen to the industry and farmers if it should come to general improvements of sustainability. If there are no incentives for farmers on one side and only restrictions on the other side, there is danger that there will be much less milk available soon. All speakers were pro a simple policy framework based on science-based facts whereby policy and administration look at it all through farmers eyes instead of the current top-down approach that tries to regulate all and everything. When it comes to sustainability standards, the whole sector should agree on one common concept avoiding "clever" marketing slogans and competing labels, van Karnebeek said. A similar thought connected with the new EU packaging regulation PPWR was brought forward by Charles Brand, EVP of Tetra Pak, who said that regulators need to listen to serious and responsible industry voices and to look at markets and the functions of packaging.

The CEOs demanded in unison that dairy keeps on innovating in markets as well as in sustainability. Arla and FrieslandCampina have already set out to pay farmers not only for ingredients but also for environment protection. Lactalis is still collecting data to be able to develop a similar concept.

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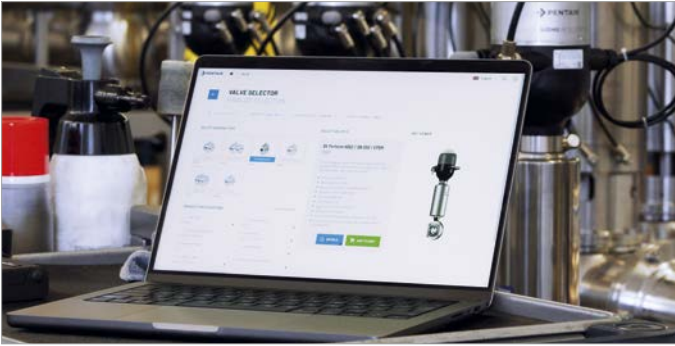
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