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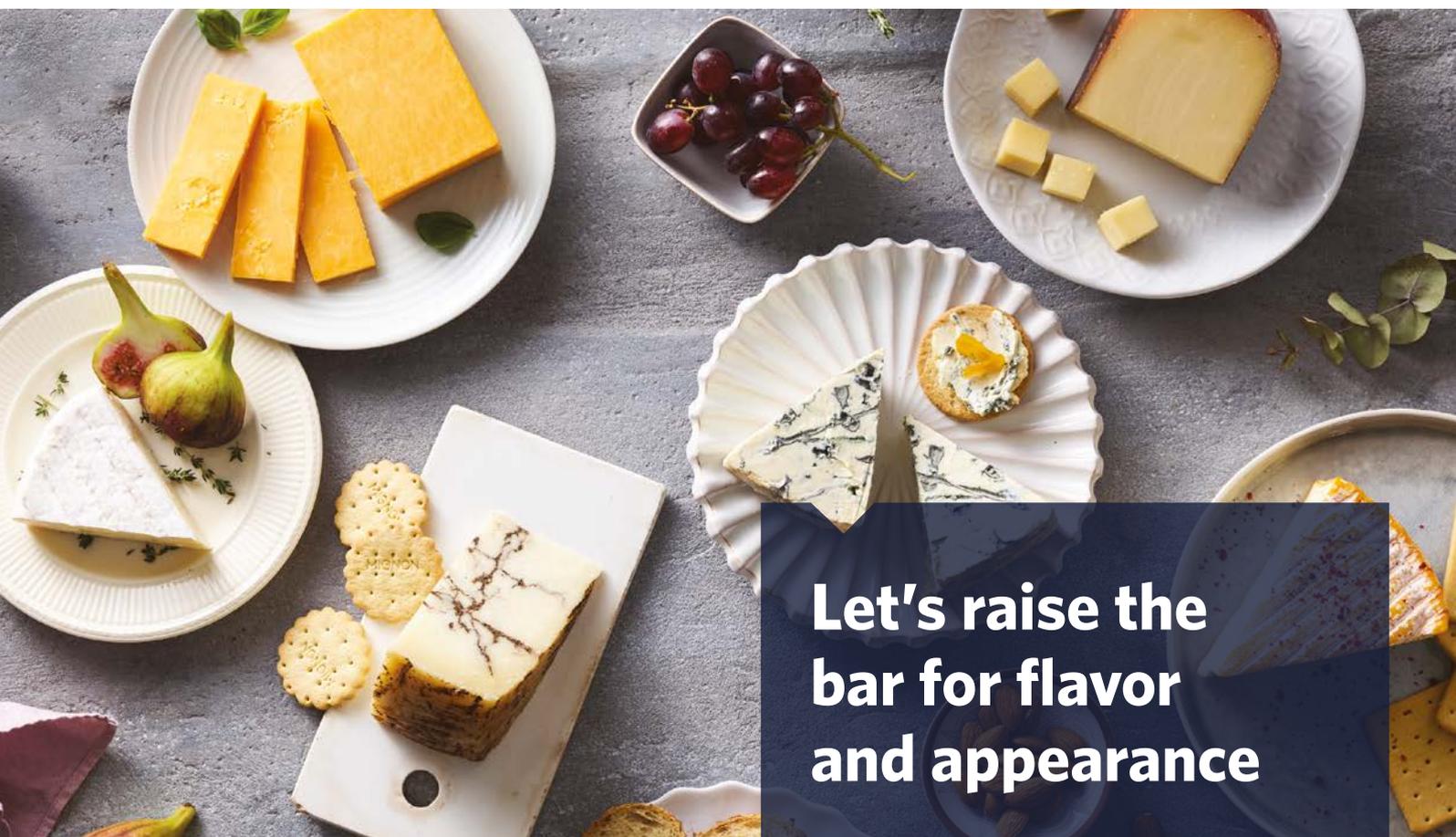
# DAIRY

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# What comes after Corona?

## Prospects for a decent milk year in 2021

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**Monika Wohlfarth**  
ZMB, Berlin

In the last weeks of 2020, two major uncertainties loomed over the dairy market in 2021: the further development of the Corona pandemic and the threat of a hard Brexit. The latter would have meant high tariffs for trade in dairy products between the remaining 27 EU countries and the UK. With shipments of around 500,000 tonnes of cheese, 80,000 tonnes of butter and 300,000 tonnes of sour milk products, as well as not inconsiderable quantities of milk powder, the impact would probably have been massive. The last-minute trade agreement of Christmas Eve eliminates customs duties and import quotas. So there is still a good prospect for the exchange of goods, even if more formalities, which are unavoidable due to the new status as a third country, will probably have a somewhat dampening effect.

The second major uncertainty is the further course of the Corona pandemic. However, with the start of vaccinations in the last days of 2020, there is justified hope for an improvement in the situation. Demand for dairy products so far has been robust despite the serious negative impact of the pandemic on the global economy. World milk volumes, which have grown more than originally expected during 2020, have been well balanced. No new stocks of dairy products have built up. Consistently high demand from the world's largest importer, China, has been a major contributor.

The main consequences of the Corona outbreaks everywhere were that there was a partial shift of sales from out-of-home consumption to food retail. This process has been well managed by market stakeholders. Exports to southern European countries have also fallen less sharply than initially feared, although the tourism business there has suffered greatly, with negative consequences for incomes and demand in the catering and hotel industry.

However, it remains a drop of bitterness that prices on the milk market collapsed during the initial uncertainty at the beginning of the pandemic. Although they recovered quickly, they did not reach the level of the beginning of 2020. This means that in 2020 milk prices for many milk producers have fallen for the third year in a row, while at the same time society's expectations towards more sustainability are growing. In the first months of 2021, dairy consumption is expected to remain more on the side of food retail than usual, as public life is expected to remain constrained initially due to the pandemic. As the year progresses, life should gradually return to normal, provided the fight against the pandemic is successful.

Then, out-of-home consumption will increasingly return to its former strength and supermarket sales will return to more normal levels. Many questions remain open as to what exactly will happen in the post-Corona period: How will incomes, employment and inflation evolve? Will work change permanently or will new consumer trends emerge from the crisis? What is certain, however, is that (dairy products) will continue to be eaten in 2021 – in Europe and around the world. With this and low stocks at the beginning of the year, a successfully concluded trade agreement with the United Kingdom and probably a less strongly expanding milk production, there is the prospect of a decent milk year in 2021.



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CP Kelco has launched Phase II of a virtual test kitchen

## New Test Kitchen CP Kelco's Virtual Experience Site

CP Kelco, a global leader of nature-based ingredient solutions, has launched Phase II of a new test kitchen in its popular virtual experience: [www.cpkelco.com/virtual](http://www.cpkelco.com/virtual).

"One of the key reasons we enjoy exhibiting at trade shows is the opportunity to introduce our visitors to food and beverage prototypes that leverage our functional ingredients," said Stefanie Chmura, Sr. Director of Marketing Excellence at CP Kelco. "While we can't offer tasting in our virtual test kitchen, we can make your mouth water with our series of 10 videos featuring prototype innovations from our labs around the globe."

Each prototype is introduced by an expert from the global Sales Technical Service team, who offers tips for using CP Kelco's nature-based ingredients to create regional-inspired foods and beverages. An easy-to-follow recipe card also accompanies each video. For example, customers will find a tropical take on a drinking yogurt, a clean-label, vegan mayonnaise-like dressing, and new ways to suspend protein in plant-based beverages.

CP Kelco's virtual experience site has become a uniquely engaging destination for the company's customers, distributor partners and other interested stakeholders, helping CP Kelco to re-imagine how it can create and sustain connections as industry trade shows have been cancelled or gone virtual due to the global pandemic.

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# Flexible despite size

The “new” Business Unit Industry of DMK Group



The feed production at DMK's Beesten plant has been equipped with an additional drying tower



**Alexander Godow, COO DMK Industry:** “We are much less dependent on commodities today”



**Dr. Annika Schrader, Director Marketing DMK Industry:** “The B2B and B2C horizons are becoming increasingly blurred”

**DMK** Group's Industry business unit has changed significantly over the past three years. The ingredients division of Germany's largest dairy company has consistently geared itself to the requirements of its customers in order to offer suitable solutions based on its own expertise and comprehensive know-how. Despite its size, the Industry BU has now become a flexible service provider, certainly fueled by the market disruptions in the wake of the Corona pandemic.

Alexander Godow, COO DMK Industry: “We have started to restructure the DMK Group in 2017 and in the process also completely rethought the Business Unit Industry. Despite several crises, in 2018 in the cheese market and in 2020 as a result of Covid-19 in the overall market, we were able to implement many of our plans. These include the acquisition of DVN Nutrition, the construction of the new drying tower in Beesten, the capacity expansion at the Nordhackstedt plant and the conversion of the cheese dairy in Georgsmarienhütte.” As Godow explains, his division is much less dependent on commodities today and thus much more focused on value creation than it was three years ago.

## New approach to customer service

This development was also accompanied by a new approach to working with customers. Dr. Annika Schrader, Director of Marketing DMK Industry: “Our customers face their very own challenges when they approach us. The processing industry has changed. Not only do they want ever cheaper raw materials with the right specifications, they also want real problem solutions. This means we must also take into account what our customers



**The Nordhackstedt cheese plant's capacity has been increased by DMK to 35,000 tons**

are planning to do with their own products in the market, so that in the end the B2B and B2C horizons become blurred for us. Today, the Industry BU is able to advise its customers on raw materials, products, applications and markets, which for us means quite simply that we have to "think outside the box."

### Everyone is involved

Change can only be achieved together and if all employees feel involved. With employees as "the connecting ingredient", the division also shows to its customers the faces behind the business unit. Godow reports a high level of loyalty and motivation in the workforce, which has made work easier, especially during the Corona crisis. Suddenly, in an unprecedented scenario, raw materials had to be taken from one to a completely different utilisation. Only with innovative thinking on the part of the employees was it possible to achieve 15 to 20% increased throughput on existing lines.

### Investment in capacity, efficiency and flexibility

The investments described above add up to a double-digit euro million amount. It was used to increase the production capacity for mozzarella in Nordhackstedt to 35,000 tons, to build a new drying tower in Beesten and to convert the semi-hard cheese dairy at the Georgsmarienhütte site to mozzarella. Both cheese plants are now flexibly equipped, also with regard to lactose and salt content in the product, they can produce in several formats and supply almost identical products. Production has also been made more efficient by intelligently separating batches so that the plant does not have to be continually rinsed. DMK now has a mozzarella production capacity of 120,000 tonnes. In 2019 it was more than fully utilised, in 2020 it was significantly less due to market conditions, but Godow is also certain, based on in-house market research, that the mozzarella market will stabilise again in the coming years.

Particularly noteworthy suppliers were GEA with its mozzarella technology (including air-cooling of the product) and Lübbers Anlagen- und Umwelttechnik, which set up the drying pro-



**The DMK plant in Georgsmarienhütte was converted into a mozzarella cheese dairy**

cess. Godow: "We carried out our conversions and extensions pragmatically and used existing buildings. With a view to a quick pay-back and the lowest possible investment, we were able to proceed very efficiently."

### DVN integrated in record time

DMK streamlined its organisation with the acquisition of DVN Nutrition in the Netherlands. All whey processing activities have come under the wheyco umbrella, with DVN now operating as wheyco Netherlands. The cooperation with Arla Foods in Nordhackstedt called ArNoCo is now also assigned to wheyco. With a throughput of five billion litres and a 180-strong workforce, the subsidiary has thus become one of the world's largest processors of (own) whey.

According to Godow, DVN was an established company in the market with a high level of quality that was firmly anchored in its customers' minds and therefore did not have to start from scratch, but the integration into wheyco still posed a challenge. This was achieved within only eight months, both in terms of business processes and IT as well as on the customer side. The integration of the new employees was also important here, which was well achieved thanks to the established welcome culture in the company. "I have never seen an integration process run so quickly, efficiently and enjoyably," confirms Godow.

# Aurora Kaas – Kranenburg

## Complete line for preparation and concentration of whey

**C**heesemaker Aurora Kaas, the family company Ten Dam with a long tradition in cheese production in the Netherlands, has built a new modern cheese dairy for organic cheese made from cow, goat and sheep's milk as well as for regional cheese varieties in Kranenburg, Germany, in 2019. The milk for the cheese production comes exclusively from organic farms.

Italian company REDA was commissioned to build the whey utilisation and concentration line in the cheese dairy. REDA has specialised in the construction of milk separators, aseptic UHT plants, membrane filtration technology and evaporation plants for the dairy industry. The whey concentrate is sold by Aurora Kaas to Col-

mena in Belgium, with Colmena participating in the investment in Kranenburg.

### Whey line

The whey line is designed for a continuous operation of 200,000 litres of whey per day. The REDA whey line consists of the following equipment:

- reception plant for whey from outside
- tank farm for fat whey from the cheese dairy
- pasteurisation plant
- separator for whey cleaning
- separator for whey skimming
- separator for bacteria removal from milk
- membrane filtration plant and polisher
- storage tanks for finished whey, permeate and whey concentrate
- shipping station for whey concentrate

### Fat whey, reception and storage

The fat whey from the cheese dairy comes cold (approx. 10°C) through a vibrating sieve into two storage tanks for fat whey. For this purpose, a Bardiani automatic valve manifold with CSF pumps was installed. Bardiani valves and CSF pumps belong to the CSF group from Parma.

Furthermore, it is possible to receive liquid whey from other cheese dairies via a fully automatic REDA whey reception system with a capacity of 40,000 l/h and, if required, to treat it either in the REDA plant (cleaning – skimming and pasteurisation) or to concentrate it directly in the membrane plant.

### Whey cleaning, skimming, pasteurisation

The stored fat whey is then cleaned, skimmed and pasteurised in the REDA pasteurisation plant in the process room. This line has a capacity of 12,000 l/h. The pre-treatment is important to ensure the quality of the concentrated whey and a long life of the membranes.

The REDA separators stand for robustness, low-maintenance and long term use. They guarantee a gentle product treatment and optimal separation efficiency. They are self-desludging, all models are equipped with a frequency converter in the control unit for power-saving control of the motor.

The pasteuriser was supplied pre-assembled and has high-quality, state-of-the-art equipment with plate heat exchangers with high heat recovery and measurement and control technology from leading manufacturers, which all in all guarantee reliable whey treatment before concentration. Finally, the skimmed, cleaned and pasteurised whey is sent to the REDA membrane plant for concentration.



(photo: Aurora Kaas)



**REDA has equipped the cheese dairy with a whey pasteuriser and separators**

## Membrane plant for concentration

The REDA membrane filtration plant consists of one RO (reverse osmosis) and one NF (nanofiltration) unit. The membrane process technology works at maximum pressures of 34/36 bar to ensure the required concentration factor and to achieve an efficient and economical permeation. The membranes are of spiral type, wrapped in polyamide.

The plant is fully automatic and operates continuously, being continuously supplied with pre-treated whey, which is divided into two streams:

- Permeate, which consists mainly of water, part of the monovalent salts (sodium, potassium and chlorides) and some organic salts
- Retentate, with the most solids (protein, lactose, divalent salts, other organic substances) from whey, concentration factor approx. 5.

The key process parameter is the concentration factor, which is the volumetric ratio between the feed quantity and the flow rate of the retentate. The plant reaches whey concentration values of 28%.

Compared to reverse osmosis (RO), nanofiltration (NF) shows a small difference in membrane permeability (slightly higher). Nanofiltration therefore allows a partial desalination of the whey. Some of the sodium and

chloride salts and other monovalent salts go with the permeate, which results in a reduction of the sodium content of the concentrate.

The unit is supplied pre-assembled on two base frames: the first base frame is equipped with the high pressure pumps, supply tank with level control, pre-filter and control cabinet, while the second base frame houses the circulation pumps and membranes.

## REDA membrane units

REDA chooses the best membranes on the market, manufactured by the most reliable companies. This refers to membrane materials, geometric configuration and optimal choice of spacers, in order to obtain the right flux, the best concentration ratio and a long membrane life. The optimisation of these parameters aims to save both investment and operating costs:

- minimisation of dead volume with consequent saving of operating fluids
- software/automation developed directly by REDA and not by external companies. This allows a better integration of software and hardware, the development of optimised automation programs and a higher efficiency and timeliness in case of need for technical assistance
- automatic control of filtration and CIP cleaning operations. The automation protects the membranes and prevents their early wear and tear
- pre-assembly of the plant in a compact design that allows easy maintenance
- start system with initial concentration control: when the system is started, the



**View of the RO unit at the Kranenburg plant**



**Bardiani valves and CSF pumps ensure the flow of raw materials**

product needs some time to reach the required concentration (initial waiting period during which the product coming out is not properly concentrated). REDA offers for this purpose a concentration control system before the concentrated product is directed or released into the storage tank

- recovery system in case of system stop: At system stop there is a discharge system that avoids dilution of the concentrated product in the membrane unit
- possibility of remote control of the system operation by REDA for technical assistance or software updates.

A second membrane unit (polisher) of the type RO, which concentrates the resulting permeate from the RO-NF unit, is installed parallel to the membrane unit. The permeate coming from this plant is water of a very good quality and can be used in the cheese dairy, for example for cleaning processes.

## Concentrate storage and dispatch

Finally, the whey concentrate is passed through a second valve manifold with Bardiani valves and CSF pumps and is then conveyed to storage for shipping.

The whole plant is controlled by a fully automatic switchgear from REDA by means of PLC and its own program.

# Managing complexity in sensorial evaluations

Chr. Hansen's TastelT Tool powered by Flavorwiki



**Marlene Boiesen,**  
Commercial Development  
Manager Food Cultures  
& Enzymes, Chr. Hansen:  
Cheese sales depend on the  
right sensorial properties of  
the products in offer



**S**ensorial evaluations tend to get quite complex the more product samples and panelists are included and the more questions are being asked. It gets even more complicated if you are to bring results in accordance with existing trend in the food markets, i.e. if you are up to evaluate how and to what degree a certain product fulfils expectations associated with such trends. Chr. Hansen has introduced a new solution to tackle with such difficulties based on artificial intelligence.

## Shifts in market trends create new opportunities

Marlene Boiesen, Commercial Development Manager Food Cultures & Enzymes, Chr. Hansen, Hoersholm, Denmark explains: "Shifts in market trends create new opportunities for cheesemakers for sure. But if they want to benefit from new niches opening in the market, they need to adapt their products to consumer expectations. We know that taste, flavour and texture are exactly the parameters that make people eat and love cheese. So in the end, sales depend on the right sensorial properties of the cheeses in offer. Here's where we developed a new structured approach to sensorial evaluation with our customers using the TastelT Tool powered by FlavorWiki."

FlavorWiki is a digital company that aims at revolutionising the way the food industry collects, analyses and interacts with consumer, sales and R&D related data. The FlavorWiki Platform combines advanced data and machine learning techniques with easy-to-use features that facilitate digital communication with consumers, colleagues, customers and suppliers around the world. The company counts major CPG and ingredient suppliers such as Chr. Hansen amongst its clients, and conducts research around the world in more than 14 languages.

## Standardised and structured sensorial evaluation

In a 6-months project, Chr. Hansen and FlavorWiki jointly developed a system that allows for standardised and structured sensorial evaluation. It went online in September 2020 and has, since then, found enthusiastic acceptance. Customers even asked to

**Introducing Chr. Hansen's Ripening Solutions  
Targeting the 3 parameters of cheese ripening**

Flavor perfection 	Improved surface and appearance 	Controlled ripening speed 
<p>3 flavor segments for new as well as traditional flavor:</p> <ul style="list-style-type: none"> <li>Core - for everyone: clean, creamy, buttery and fresh</li> <li>Character - for explorers: fruity, nutty, savory and roasted</li> <li>Connoisseur - for experienced: farmhouse, sulfur, piquant and earthy</li> </ul>	<p>Customized solutions for diverse texture, surface and appearance needs:</p> <ul style="list-style-type: none"> <li>Surface coating: White mold, yeast and aerobic bacteria</li> <li>Veils formation: Blue mold</li> <li>Eye formation: Propionic bacteria</li> </ul>	<p>Solutions to optimize the cheese life cycle:</p> <ul style="list-style-type: none"> <li>Accelerated ripening: Take products faster to market by reducing ripening time and saving costs</li> <li>Extension of shelf-life: Reduce waste by increasing the sales window. Increase export opportunities</li> </ul>

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**Three flavor segments: CORE, CHARACTER & CONNOISSEUR  
Select the flavor segment that best fits your needs**

CORE - for everyone Flavor matching mild cheese for any occasion	CHARACTER - for explorers Solutions that add character to your cheese	CONNOISSEUR - for experienced Intense flavors for discerning consumers
  <p>CLEAN CREAMY</p>	  <p>FRUITY NUTTY</p>	  <p>FARMHOUSE SULFUR</p>
  <p>BUTTERY FRESH</p>	  <p>SAVORY ROASTED</p>	  <p>PIQUANT EARTHY</p>

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adapt the solution for their B2C market analysis. Amongst the many mega trends that characterise today's market environment there are several that allow food manufacturers necessary differentiation. Most important in this context are snackification and individualisation. Foods need to fit to individual life and consumption patterns and those patterns produce fragmentation and diversity.

As consumers are becoming food explorers who are willing to experiment and try foods and flavors which are new and different they open up opportunities to differentiate the taste and fill the growing gaps in the market. Industrial-made foods are moving away from 'one size fits all,' instead catering to more diverse emotional and cultural needs that comes into the focus. Chr. Hansen, says Boiesen, has a wide portfolio of cheese ripening solutions that allow cheese makers to produce cheese in virtually any desired quality in terms of flavour, texture and taste. The TasteIT Tool is being used to explore new cheeses and creating opportunities with our customers.

**Core, Character and Connoisseur**

To exactly evaluate these key criteria in sensory panels, Chr. Hansen has defined three main flavour segments: Core, Character and Connoisseur. Core, destined for all consumer types, stands for mild and creamy cheeses. Character is the area for the explorers that seek exciting flavours and Connoisseur covers those consumers that prefer the classic distinct flavours ranging from piquant to sharp. Each of the three key criteria is subdivided into four sub-flavour characteristics (see graph) for best possible description of sensorial experience. And all this was transferred into the TasteIT Tool.

The TasteIT Tool is basically a web-based solution into which the panelists can express their judgements by simply clicking a box. Panelists are asked about their opinion of certain cheese samples, in a number of subsequent steps these opinions are being tested and questioned. The result is a thorough insight into how the samples fulfil any given expectation. Of course, the TasteIT Tool can also be used to evaluate how reduced ripening times really influence product characteristics.

**Paired rating**

At the core of the TasteIT Tool stands paired rating and forced choice. These are quite simple "yes or no" questions that allow untrained, non-professional tasters to map their individual flavor perception in an objective and intuitive manner.

The paired rating is based on consumers (or cheese makers!) being able to distinguish difference between intensities of flavors, textures and products. To capture this, FlavorWiki gathers this data

with their patented "Paired Question" process. In this method, participants are asked to choose between sensoric attributes in a paired fashion by comparing Attribute A vs. Attribute B. A number of pairs are shown to the taster, the choices are processed by the patented algorithm into a mathematical value and presented on graphs.

The TasteIT Tool performs on smart devices and computers alike. In Chr. Hansen tests can be made in physical or virtual groups or even by individuals. The digital tool shows real time response and allows discussion and easy share of the results of tasting. All in all, overall preference of cheeses compared to each other can be evaluated. The TasteIT Tool can also be used for other product development than "just" of cheese. Chr. Hansen will expand the use of the tool to other business areas i.e. the fresh dairy.



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# Why now is the time for organic dairy ingredients

A milestone for Arla Foods Ingredients – and for the industry



Author: Peter Schouw Andersen, Director, Application Science & Technology, Arla Foods Ingredients Group P/S

In August 2020, we announced the arrival of MicelPure, a new micellar casein isolate containing a minimum of 87% native protein. Every product launch is big news for us, but this one was particularly exciting for two reasons. MicelPure is the first ever Arla Foods Ingredients product to be offered in an organic version (it is made from certified organic milk from Denmark). It is also the first ever organic micellar casein isolate on the market, making it a perfect way to meet growing consumer demand for natural and organic products.

## The growing importance of naturality

The benefits of dairy protein for muscle growth, recovery and weight management have driven consumer demand in a range of categories, and the high-protein trend is definitely here to stay. However, today's manufacturers also have to meet many other needs, and consumer purchasing decisions are increasingly based on ethical values.

One of the most important market trends in dairy is growing demand for products with what might be described as a wholesome positioning: recent research by Lindberg International has shown that "healthy" and "natural" are the two most important characteristics for European consumers of food products. Demand for clean label dairy is not confined to western markets. In China, for example, research shows that "made with real ingredients" and "no artificial flavor/colors" are the most important claims for consumers.

Because it is rich in native protein, MicelPure helps manufacturers respond to these needs. Micellar casein isolate is extracted from milk using gentle processing without the addition of acids. The protein maintains its chemical structure, allowing the creation of products that are as close to nature as possible.

## Organic – powerful associations

Organic production is a system of farm management defined by the best environmental practices, biodiversity, preservation of natural resources and high animal welfare standards. Its key principles include a ban on GMOs and on the use of chemical pesticides.

Organic options have very powerful associations for consumers. They are considered more environmentally friendly, better for animal welfare, safer and more nutritious. Lindberg International



**Arla Foods Ingredients' Nutrilac range offers multiple functionalities in dairy products, including improved texture, creaminess and stability**

**“Healthy” and “natural” are the two most important characteristics for European consumers of food products**



al's research found that perception of healthiness was the primary reason for consumers to choose organic products, with 53% of respondents considering it more nutritious than non-organic versions. Over half (55%) even said organic food tastes better.

Nearly three quarters (73%) said they would buy more organic dairy products if they were more widely available. Reflecting this, the global organic dairy market is expected to grow at a CAGR of 5.7% between 2014 and 2024.

### **Nutrilac – Organic functional solutions**

Arla Foods Ingredients' Nutrilac range offers multiple functionalities in dairy products, including improved texture, creaminess and stability.

Now we have been able to develop a Nutrilac organic product line based on Nutrilac MicelPure. The addition of organic ingredients to the range will help manufacturers combine functional benefits with a natural, wholesome, organic positioning which further increases consumer appeal.

Applications for the new range include ice cream – a category where manufacturers rarely have the opportunity to position products as wholesome. It is also ideal for organic yogurts, where it can provide an excellent clean taste and a smooth mouthfeel.

Made from 100% Danish milk, our new organic ingredients are low in lactose and fat, heat-stable and taste-neutral. Depending on applications, on-pack benefits include natural, no-added sugar and slow-digesting protein.

### **Solutions for the way consumers eat cheese today**

Our new organic MCI offers particularly exciting opportunities in the cheese category, which fulfils an important role

in a world where ethical purchasing drivers are increasingly important.

For example, grilling cheeses such as halloumi are a great source of high-quality protein (as well as taste and texture) for the growing number of consumers who are interested in meat-free meals. At the same time, launches of organic cheeses are growing at a CAGR of 15.1% in Europe. Meanwhile, contemporary ways of consuming cheese are increasingly varied – consumers may want to grill their cheese, pan-fry it, deep-fry it, slice it, or make shapes from it.

Our new Nutrilac line includes a solution that helps boost the consumer appeal of cooking-stable cheese-based products. It can be added to recipes for grilling cheeses, cheese patties for burgers, cheese sticks, cheese nuggets, and cheeses for hot pot soup.

Cooking stable cheeses based on Nutrilac offer significant benefits to manufacturers. Our new solution is heat-stable in processing, flexible in terms of sodium content and has a neutral taste. It can also allow the creation of recombined dairy products that are just as delicious as those made from fresh milk.

Other advantages include a simple processing set-up, an opportunity to save up to 75% production time and 100% yield in 25 minutes.

### **Helping active nutrition go organic**

There is also high demand for natural and organic solutions when it comes to applications for sports and active nutrition. For example, in Lindberg International's research, over four in ten (43%) consumers said naturalness was an important factor when purchasing RTD high-protein beverages.

In the past, a lack of suitable ingredients on the market may have prevented manufacturers from offering high-protein products that meet this need. However, Arla Foods Ingredients is now able to help sports nutrition and health food manufacturers create high-protein products with a natural and organic positioning. With a clean taste profile and high protein content (88-96%), Lacprodan MicelPure Organic is ideal for high-protein RTD beverages, powder shakes and puddings. It is low in lactose and fat, and heat-stable in processing.

### Perfectly placed to meet demand for organic

As the global demand for organic ingredients and products continues to grow, Arla Foods Ingredients is proud of the fact that we have the world's largest source of organic milk. Our organic milk fulfils both the European and Danish organic requirements as a minimum.

We own our entire supply chain, from farm to manufacturing facility, giving customers access to organic milk from grass-fed cows. In addition to our experience in handling organic production, we have in-depth knowledge of the Chinese organic legislation and registration process, and strong ties with a range of global authorities and agencies.

### Filling the organic gap in dairy markets

When consumers hear 'organic', they think healthy, sustainable and wholesome. However, until now, a shortage of natural, organic protein ingredients has prevented many manufacturers from entering this market. We're excited to be filling that gap. MicelPure Organic meets a very clear market need, allowing manufacturers to extend their portfolios with products that are both organic and packed with high-quality protein.



**Global demand for organic ingredients and products continues to grow**

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- [4] Lindberg International 'Consumer study on perception of organic food products and organic purchasing habits', 2019
- [5] Euromonitor

## 14<sup>th</sup> International Brew & Beverage Processing Technology and Equipment Exhibition for China

### Strong signal for the beverage industry

The need for B2B networking and information was high – it was palpable at the world's second-largest trade fair in the beverage and liquid food industry. CHINA BREW CHINA BEVERAGE (CBB) took place from October 13 to 16, 2020 in Shanghai. Due to the coronavirus, the trade fair had a largely national focus, although 101 exhibitors were from other countries.

China Brew & China Beverage 2020 showed that there is a high level of interest in technologies for efficient, hygienic and flexible beverage production. CBB

was seen by many decision makers in the industry as a chance to re-start their business. The trade fair attracted 31,781 visitors comprising around 30 delegations, including those from the National Food Management Center of China Light Industry, the China National Research Institute of Food & Fermentation Industries and the Guangdong Beer Association. 418 Chinese exhibitors and 101 international companies presented their innovations and products – with the latter largely represented by their subsidiaries in China.

# Halloumi and Grill Cheese

## New production line by NDT

**T**oday Halloumi or grill cheese is for many still seen as a specialty from Cyprus. However, its historical roots dates to ancient Egypt, where halloumi was produced from sheep and goat milk. Today, the predominant part of grill cheese is produced from cow milk.

Grill Cheese (halloumi) is on the rise in Europe and the drive is rooted in our new eating habits, where vegetarians and in particular flexitarians are seeing the product as a healthy and delicious substitute. A development very much in line with the rise in consumption of plant-based meat products.

Other drivers are:

- ✓ Growing ethnicity and added hereto the lack of holiday travelling due to Covid19 restrictions.
- ✓ New eating habits – vegetarians and flexitarians (e.g. the number of flexitarians in DK is 28% and growing).

Add hereto the rising demands from export markets the Middle East and UK. Current volumes from the established supply channels cannot manage this growth, so this calls for investment in additional processing capacity.

### New production line

The newly designed modular Grill Cheese production line from NDT comes in handy. The line is based upon the halloumi method and NDT is in the process of delivering such a line to a dairy in Sweden.



The new line holds a variety of ground-breaking features and designs regarding the process as well as with respect to environmental issues, and the key elements are the following:

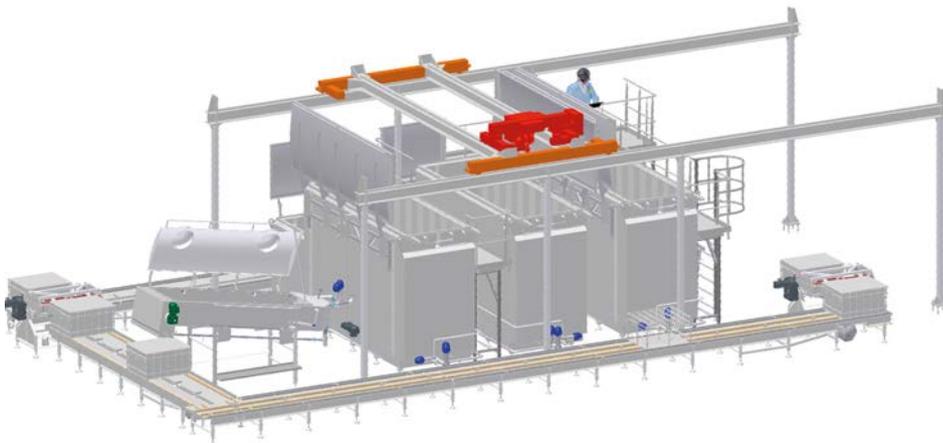
- ✓ Full control of core temperature in the cheese itself. By this it becomes possible to control both grill characteristics as well as the aroma development in the cheese to the point. Additionally, this makes it possible to develop more cheese recipes.
- ✓ A full range of salt percentages can be managed. The line design of the salting process and brine circulation provides full control, and by this salt percentages from 0,2% up to e.g. 7% can be managed very precise.
- ✓ Reduction of consumption of steam, electricity, and cooling by more than 40%.
- ✓ Add hereto a range of automatization features reducing man power drastically.

The line for Sweden has a capacity of 700 tons pa, however this can be easily expanded to 4,000 tons pa. It is fully automated and the manning is 2 people. The area requirement is 200 m<sup>2</sup>, and the line reduces labour cost by 70 - 80%

It also reduces the consumption of steam, electricity, and cooling by more than 40%.



NDT has developed a modular line for Grill Cheese production (photo: NDT)



Layout of a new grill cheese plant that will be installed in Sweden (source: NDT)

# Unusual flavor combinations

## Consumer trends drive innovation in flavor combinations



Author: Kamesh Ellajosyula, Chief Innovation Officer, Olam Food Ingredients

**L**ockdown measures worldwide have led to consumer behavior changes in relation to food consumption. This change has been marked by substantial shifts in shopping patterns, meal preparation and eating habits – with consumers reaching for foods that provide emotional comfort as well as health benefits, likely to herald a lasting habit post-pandemic.<sup>[1]</sup> As a result, manufac-

turers are looking for new ways to push the boundaries of flavor through research and product development to appeal to this ‘consciously indulgent’ consumer. Flavor trends emerging in dairy products – milks, yogurts and ice-creams – are allowing manufacturers to create healthy, tasty, formulations that consumers can indulge in and, while traditional flavors like vanilla and chocolate are still very popular, new preferences are high-

lighting opportunities for more sophisticated options.<sup>[2]</sup>

### Flavors that highlight health

Within the dairy industry, producers are coming up with new ways to deliver tailor-made products with unusual flavor combinations that consumers will love, but that are also in line with their needs. One particular trend that has grown within the food industry is health and wellness<sup>[1]</sup> and ‘golden milk’ – also known as turmeric milk – has gained popularity for its health benefits in Western cultures. This bright yellow beverage is traditionally made by warming up dairy or plant-based milk with turmeric and other spices, such as cinnamon and ginger, or used to create turmeric lattes. Popularized for its many assumed health benefits, including boosting longevity, turmeric milk is often used as an alternative remedy to support immune health.<sup>[3]</sup>

It’s not only spices where unusual flavor combinations are being utilized to meet consumer demands. Worldwide, cocoa is a popular indulgence flavor for consumers. OFI’s Joanes Brazilian cocoa powder has been uniquely developed for use in dairy products, with a no-sodium added cocoa option to support health-conscious application recipes. Because Joanes cocoa powders are obtained





**Foods that boost health and plant-based dairy alternatives will continue to trend into 2021 (photo: Olam)**



**Unusual flavors in dairy treats include combinations of cinnamon, guajillo pepper and cocoa (photo: Olam)**

from grinding cocoa cake, they retain their superior color and flavor characteristics.

### Permissible indulgence

Other unusual flavors in dairy treats include combinations of cinnamon, guajillo pepper and cocoa. This 'sweet heat' taste has become a popular flavor combination in Mexican-inspired hot chocolates, offering the comfort of chocolate with an adventurous kick. Moreover, a natural cocoa powder pairs wonderfully with chipotle pepper – especially in dairy applications. Introducing chili to tropical fruits such as mango or passion fruit in an ice cream ribbon or cheesecake cuts through the dairy to emphasize herbaceous and grassy notes, cleansing the palate and delivering a well-rounded flavor. Olam Spices, part of OFI, has seen growing demand for warming spices such as ginger, cinnamon and turmeric – all appealing to the sweet-toothed consumer looking for 'healthier' products.

Consumers are also adding spices to season beverages. Cayenne pepper, known for stimulating body circulation and reducing acidity<sup>[4]</sup> is a popular favorite being added to coffee. In the case of spiced coffee, cayenne can be included in small quantities – along with other spices – to provide an exotic and warming heat to the brew. Recent research has also shown that it may relieve pain from headaches, help digestion, and even prevent heart disease.<sup>[5]</sup>

### Experimenting with flavors in plant-based dairy alternatives

As well as foods that boost health, plant-based dairy alternatives will continue to trend into 2021, driven by consumer demands for wellness, diet variety, sustainability and taste.

<sup>[6]</sup> Within plant-based dairy alternatives, Olam Cocoa is pioneering ways to maximize cocoa flavoring and create flavor experiences that provide moments of pure pleasure and delight. For example, in yogurt alternative applications, often the bitterness of the cocoa doesn't combine well with the acidic flavor notes of the yogurt alternative. Olam Cocoa has been working on a solution to this with a specific non-bitter cocoa powder type suitable for use in yogurts or other low pH food products, making it possible to create fresh chocolate plant-based yogurts that are both stable and delicious.

With plant-based cheese products, creating a distinct aroma and flavor is key. This category is rapidly growing, and these products are usually made from cashew and almond nuts, which often carry a neutral taste. Spices can be used to naturally flavor these products and create exciting new flavor combinations while retaining clean label and sustainability appeal. For example, onion and garlic can heighten the toasted/raw nutty flavor in nut-based cheeses and also bring out that umami flavor. Additionally, black pepper, cumin and chilies added to a plant-based cheese or spread create a nice aroma, while white pepper – a fermented product – gives the cheese a ripened pungency commonly found in dairy cheeses.

### Finding a winning combination

The pandemic has certainly played a role in determining flavors for 2021 as people turn to food and drink for both comfort and health. Innovating with new, unusual flavors will be key for manufacturers to keep consumer interest and give products a unique edge. Nevertheless, balancing flavor with functionality will be crucial.

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# The power of natural extracts for innovative ice cream ideas

## Sensient Flavors

**A**s demand for high-quality, healthy and intensely flavoured ice cream hots up, natural ingredients, such as natural plant extracts, offer a number of benefits, including opportunities for premium positioning 75% of UK consumers who have eaten ice cream in the last three months agree that it is appealing to eat all year.<sup>[1]</sup> But this timeless classic is moving rapidly with the times, which means manufacturers must meet multiple consumer demands – from health and functionality to unrivalled taste and texture.

### Any time, anywhere

The days of ice cream being considered primarily a kid's treat are long gone, as it now confidently occupies a variety of different market segments. According to Global Data, men and millennials in particular form a loyal customer group, as they are most likely to eat ice cream at least once a week.<sup>[2]</sup>

Furthermore, ice cream is no longer seen solely as a palate-pleaser or dessert choice. In fact, the reasons for ice cream consumption are many and varied these days. For example, 33 per cent of Chinese consumers who ate desserts in the last 12



months, including ice cream, say they did so to ease stress. And 63 per cent of US consumers who purchased ice cream sandwiches in the last six months cited 'snacking' as the reason.<sup>[3]</sup>

The ice cream segment is also undergoing changes influenced by the ever-growing global demand for healthier food. That's why producers are being challenged to meet the expectations of conscious consumers seeking out ice cream variants with a health-support promise – for instance, through added proteins, low or no sugar formulations, or by incorporating superfoods, dairy-free alternatives or fibre. In this respect, formulation components with a specific health appeal play a key role: 37 per cent of consumers worldwide would feel less guilty about consuming unhealthy food or drinks if they contained at least one healthy ingredient, so Mintel.

### Health twist

To help ice cream makers better adjust their concepts to health and indulgence expectations, Sensient Flavors offers a range of 100% natural extracts.

Produced through sophisticated extraction methods, natural extracts capture the aromatic top notes of original



(photo: shutterstock)

plants, delivering both strong and authentic flavour profiles. Thus, they help ensure well-balanced flavour in the end product, which can be particularly important for low- and zero sugar formulations.

As direct derivatives of botanicals, natural extracts are a valuable addition to ingredient lists, supporting, for example, vegan or vegetarian positioning. Being all-natural and GMO-free, they go straight to the heart of a product's natural appeal and create value by validating a clean label or a brand's "free-from" promise.

Moreover, extracts convey not just the flavour essence of their corresponding plants, but also the beliefs and traditions associated with them. In terms of a product's marketing, the presence of natural extracts causes a psychological "halo-effect", thus creating a good impression of the product, influenced by positive feelings related to the extracts.

### Strength, relaxation and mental focus

According to Sensient Flavors, utilizing healing plants well-known in traditional medicine will be one of the leading flavour trends in the ice cream segment in 2021. Thanks to



**Natural extracts help ensure well-balanced flavour in the end product (photo: shutterstock)**

carefully chosen extraction techniques, natural extracts can also conserve the functional properties of healing botanicals – and so gently assist bodily functions, for example, by promoting calming effects, boosting mental energy or supporting the immune system.

Elderberry extract is a perfect example of an ingredient that is both tasty and functional. It has emerged as a superfood in the growing vitamin category thanks to its high content of phytonutrients that help protect cells against oxidative stress. The same dual purpose is true of Passionflower, as it provides more than just a fresh and fruity taste. The plant has antidepressant and calming effects, as it boosts the level of Gamma-aminobutyric acid (GABA) in the brain. This has been shown to ease anxiety and promote relaxation, without affecting concentration.<sup>[4]</sup> Ever popular is Chamomile – not only as an old favourite flavouring agent but also one of the most ancient natural remedies for the treatment of stress, anxiety and insomnia.

Natural herbal power also has much to offer when it comes to improving focus and concentration, enhancing memory and stimulating mental energy. For example, Green tea helps to promote mental performance and reaction time, thanks to unique amino acid L-theanine contained in the leaves. Another valuable mind enhancer is unroasted Green Coffee Beans. The extracts of Green Coffee Beans, such as those produced by Sensient Flavors, are extremely high in caffeine (9-12% wt.) and thus promise a mind and motivation boost when used in ice cream.

### Spice up your life

With 66 per cent of dairy consumers keen to experiment with new and unusual flavours when shopping for food<sup>[5]</sup>, it is perhaps not surprising that classic flavours such as vanilla, strawberry or chocolate seem to be rather outdated when it comes to new ice cream creations. Taking their place is a new up and coming flavour trend highlighted by Sensient Flavors. Known as Swavory, it is an eclectic fusion of sweet and savoury tastes. Currently, the lines between sweet and savoury tastes are blurring in the ice cream segment, with inclusions such as cheese, breads and pretzels growing in popularity.

This trend has also led to an increase in popularity of herb and spice flavours. Here, Sensient Flavors has created a special “Rosemary, Basil and Caramel” concept, including extracts of Rosemary and Basil drizzled with caramel sauce. Fresh and bold herbal notes can bring a delightful intricacy to new ice cream creations, for example, through the use of Cardamom, Ginger, Cinnamon or Turmeric extracts.

Furthermore, the growth in consumer demand for plant-based offerings has also seen vegetables shift from the savoury segment to the dessert market. Originally used as a star ingredient in the desserts of restaurant chefs, vegetables in ice cream have now gone mainstream – both for flavour and as a nutritional component – with examples including Avocado, Cauliflower, Pumpkin, Chick Peas and Tomato.



**In Europe, there is a trend towards gourmet gelato products that mimic other rich and indulgent desserts (photo: shutterstock)**

### Premium perfection

Particularly in Europe, there is a trend towards gourmet gelato products that mimic other rich and indulgent desserts. As a new premium product idea, Sensient has designed a dairy-free Luxury Vegan Chocolate, Chilli and Elderberry ice cream. The new creation is a combination of premium vegan chocolate and elderberry sorbet with Elderberry extract at its heart. Refined with a hint of chilli and blueberry crystals, this culinary creation ticks all the boxes when it comes to healthy indulgence, sophisticated flavours and toppings, and is particularly appealing to discerning adults.

### Amazing Asian

While ice cream is a universal favourite, few people know that this popular dessert actually originated in Asia – ancient China, in fact. So it seems fitting that Asian influences are now beginning to dominate international ice cream sales. Asian flavours are already a mainstay of Western cuisine – soy, sauce, kimchi, miso, wasabi, etc. – but have now merged effortlessly into the dessert sector.

When it comes to ice cream, matcha is leading the way, but looks set to be followed by flavours such as hojicha, milk tea, plum powder, sakura and sesame.

For a moment of exotic escapism, the expert flavourists at Sensient Flavors offer a number of invigorating combinations: Mango, Turmeric and Chocolate, Pink Pepper and Raspberry, Yuzu and Ginger. In particular, the flavour company has more than 70 years' experience with ginger

extracts, and offers six different flavour profiles, including Nigerian Ginger extract – woody, pungent, sweet and aromatic with a hint of spice – and Chinese Ginger extract, a mild blend of sweetness, spiciness and terpenic citrus.

### Ahead of the game

Natural extracts play a vital role when it comes to elevating a product's clean and clear appeal: According to Sensient Flavors' recent primary research, 72 % of consumers think that the words “natural” and “extract” most define what “clean label” means.

James Street, Marketing Director EMEA at Sensient Flavors, says: “We employ advanced techniques to design, extract and benchmark our extracts, so that we can consistently meet customer expectations. Statistical design ensures we develop processes that are optimised for the delivery of intense, authentic flavour profiles, and our extraction technologies are geared towards preserving the most delicate flavours by the use of low temperatures and minimal processing, for example. Additionally, our extracts are benchmarked using the latest analytical techniques to ensure consistency.”

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[5] Global Data

# IDF publishes update on dairy terms guidance



Author: Laurence Rycken, Science and Standards Program Manager  
International Dairy Federation



**T**he IDF's update to its bulletin on the Codex General Standard for the Use of Dairy Terms, also known as the GSUDT, is now available, providing the reader with the latest information on the nature, content and possible implications of the GSUDT in the context of national, regional and international trade, including its status in relation to the WTO Agreement on Technical Barriers to Trade. The update supports policymakers, food business operators and enforcement authorities in avoiding any erroneous use of dairy terms for non-milk products, essential for safeguarding consumer health.

The natural origin, nutritional value, functional properties, and sensory characteristics of milk and milk products have created the uniquely positive consumer perception and strong market position of milk and milk products all over the world. Protection of the integrity of dairy is vital, given that the production and placement on the market of nutritionally inferior imitations can pose potential health risks for consumers. The Codex General Standard for the Use of Dairy Terms (CXS 206-1999) was adopted by Codex Alimentarius in 1999, corresponding to its mandate to ensure the correct use of dairy terms intended for milk and milk products, to ensure fair practices in the food trade, and to protect consumers from being confused or misled by the use of dairy terms for non-dairy products.

Globally recognized and implemented in the regulations or policies of many countries all over the world, the clear rules of the Codex GSUDT provide an internationally accepted

framework to protect the integrity of milk and milk products against nutritionally inferior imitation products that attempt to take advantage of the natural and healthy image of milk and milk products. IDF Bulletin 507/2020: The Codex General Standard for the Use of Dairy Terms – Its nature, intent, and implications, has been developed to help policymakers, food business operators and enforcement authorities interpret the detail of the GSUDT. This new edition replaces previous Bulletin of IDF No. 397 of 2005 on the subject.

The bulletin provides details on the GSUDT, covering both labelling and promotional information about dairy products and other foods for further processing as well as for direct consumption, and information on application of the terms "milk", "milk product", "composite milk product", "reconstituted milk product", "recombined milk product" and other "dairy terms" and information related to the interpretation of Codex GSUDT. Its application assists consumers all over the world in making their own purchasing decisions regarding milk products versus non-milk products and assists policymakers to ensure fair practices in the food trade.

The publication of IDF Bulletin is accompanied by the release of a supporting IDF Position Paper on the subject, which provides an overview and key messages. The bulletin and IDF Position Paper 'The Codex General Standard for the Use of Dairy Terms – Its nature, intent, and implications' are available to download free of charge on the IDF website [www.fil-idf.org](http://www.fil-idf.org).

# Automated cheese production

## Vorarlberg Milch contracted Dematic

In Austria, logistics automation technology has been implemented at Vorarlberg Milch eGen, one of the country's largest dairies. The cooperative now relies on innovative solutions from Dematic. During the expansion of the Feldkirch production site in Austria, the intralogistics specialist installed a customized automated guided vehicle (AGV) system, which has four AGVs handling all transport activities between the ripening rooms and the treating machines. They are guided by the integrated Dematic navigation software.

The "Ländle" – or the countryside – between Arlberg and Lake Constance, is traditionally associated with agricul-

ture and is primarily known for its alpine milk. Almost 60 percent of all milk products in the region are produced in Vorarlberg, a federal state in Austria. In total, the cooperative, established over 70 years ago, currently processes almost 66 million liters of milk annually. Over 500 regional farmers supply the Austrian dairy at its Feldkirch production site with fresh milk daily. The raw material is then processed on-site under strict hygiene and quality guidelines. Vorarlberger Bergkäse is a well-known and popular product; a driving force for the entire economic region. One of the greatest challenges in production is guaranteeing a consistently

high quality at all times. The traditional shift work of the past often resulted in variations in this respect.

Today's production, however, is often automated. At Vorarlberg Milch, the company recently installed an AGV system from Dematic as part of a site expansion. "We anticipate that our productivity will be higher while still producing superior end products. With fewer manual operations, our error rates should also drop," explains Johannes Wehinger, the technical manager at Vorarlberg Milch eGen. Dematic's scope of supply included four Dematic AGVs of type FLV 3317/CMM which, thanks to automation, transport the cheese between the loading and unloading station, the ripening rooms and the treating machines. Also included in the overall solution package is an E'nso control unit along with E'tricc control system software for traffic control and transport management.

### Automated recipe and warehouse management

Not all cheese is the same. Each type has its own special ingredients and steps and is subject to different storage, cooling and treating processes. At Vorarlberg Milch, after maturing for up to eight months, the loaves are next immersed in a salt bath and then drained onto a platter or board. From there, they are transported to a ripening rack by an AGV with a load capacity of 1.7 metric tons and a lifting height of 3,300 mm, or nearly 11 feet. They are then given a barcode, which allows them to be identified both by a barcode reader on the automatic vehicle and by



One of the largest Austrian dairies, Vorarlberg Milch eGen, uses automation technology from Dematic at its production site in Feldkirch. (Photo: Vorarlberg Milch eGen)



**Dematic has installed a customized automated guided vehicle (AGV) system at Vorarlberg Milch eGen. Four AGVs now perform all transport activities between ripening rooms and the treating machines and are controlled by integrated navigation software from Dematic. (Photo: Vorarlberg Milch eGen)**

a mobile scanner. The information can then be easily transferred to the control system control software E'tricc. "This is where all the information technology threads come together so that every function can be performed as required," explains Wehinger. This is because the software not only controls the vehicles, but also manages the storage locations in the eight ripening rooms as well as the local processes.

E'tricc also handles recipe management. This requires importing the individual cheese recipes to the software. They consist of several predefined treatments that must be applied during cheese production. Whether it is the duration of the ripening phases or treating measures such as brushing, board turning or cheese turning, they must all be defined. As soon as a cheese rack is stored in one of the ripening rooms, the software triggers the necessary transport activities between the ripening rooms and the treating machines. Once a treatment has been completed, it ensures that an AGV transports the products to the target destination as defined in the recipe. In addition to operating the refrigerated and ripening storage areas, the automated vehicles also manage the supply and removal of the ripening racks at the cheese treating machines. Depending on what is required, an AGV transports the cheese from the ripening rooms to the cheese treat-

ment area. It also destacks the cheese onto the conveyor system installed nearby and restacks the racks on top of each other after the treatment. "A Dematic AGV ensures that the respective processes are followed to the last detail, allowing us to handle 50 loads per hour," says Wehinger. The system is in operation seven days a week in 3-shift days.

### **End-to-end traceability of the production processes**

In addition, E'tricc can visualize the entire warehouse, including the conveyor technology, ripening and treatment systems. An operator is shown the time for the next processing stored in the product's recipe. A set of colors indicate to the operator the batch status or whether the treating machine is occupied and active. Both the racks and the vehicle status are also dynamically visualized. "This has meant a huge simplification in terms of the exact traceability of every vehicle as well as the cheese from storage to retrieval," says Wehinger.

Dematic E'nsor navigation software steers the AGVs via a preconfigured layout. The integrated software uses sensors as well as a positioning module to guide the vehicles through the route. To this end, every driving route is stored in the AGV so that it can transport loads and carry out actions fully automatically. "The Dem-

atic vehicles are not limited to a single lane and can travel using a number of routes and storage locations depending on the order. Deviations from the defined routes are essentially impossible," Wehinger explains. And E'tricc can update routes. The software also ensures an optimized material flow by determining which vehicle handles a particular order and then calculates the fastest route. The Dematic solution is also linked to Vorarlberg Milch's in-house software via an interface.

### **Seamless commissioning**

Vorarlberg Milch selected Dematic based on its proven track record of providing intralogistics solutions. Its high level of customer orientation was another strong factor in its decision. "In the automation of cheese production, Dematic is clearly one of the pioneers and has demonstrated a high level of expertise over the past decades," notes Wehinger. During the project phase, they exchanged intensive information about the characteristics of an optimal solution for Vorarlberg Milch. The vehicle commissioning and the software installation went off without a hitch. "Since then, we have been much more efficient in how we work," Wehinger concludes.



**Dematic's E'tricc can visualize the entire warehouse, including the conveyor technology, ripening and treatment systems (Photo: Vorarlberg Milch eGen)**

# Perfect system, perfect flavor

## Zott uses Sistar control system



Author: Jürgen Speck, Marketing Manager BRAUMAT/SISTAR, Siemens AG

**F**or many people, not only in Germany, the brand name Zott is associated with very enjoyable moments. Among the products the company produces at its Mertingen plant are desserts and yoghurts, which are more than just delicious treats – the company is also justifiably proud of the high quality of its multiple award-winning products. Zott has a modern automation environment and imposes strict controls to

ensure that every individual product meets the highest demands. The Sistar control system is part of the automation landscape in Mertingen. It has intelligent functions to support efficient control and optimization of the company's processes.

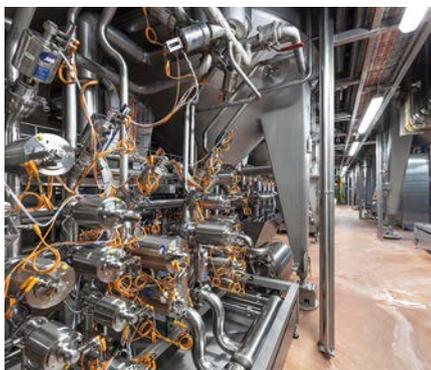
The history of the Zott Gourmet Dairy began where the headquarters of this family business are still located today: in Mertingen, a small town some 30 km north of Augsburg. The small country dairy that the husband

and wife team of Anna and Balthasar Reiter purchased in 1926 has today become one of the leading dairies in Europe, with production plants in Germany and Poland. Here in Mertingen alone, up to 2.5 million liters of milk are delivered each and every day during the high season. In three lines, tankers deliver the milk from some 4,000 farmers contracted to Zott SE & Co. KG as well as from other selected suppliers. About half the milk goes to the cheese factory at the location, whereas the other half is further processed into yoghurts and desserts.

### An evolved system environment

The nerve center of the yoghurt and dessert production processes is the control room, where Patrick Linder and his colleagues track the path of the milk from reception through to packaging. Linder said, "We check and start the jobs, observe the process, and respond to malfunctions." Without an appropriate degree of automation, he and his colleagues simply could not manage the quantities involved, some of which are enormous. He added, "On 6 filling lines in building section 12 alone, we can fill up to 234,000 beakers of yoghurt or dessert per hour. We therefore have to keep the entire process under continuous observation."

**A passion for pleasure: The best raw materials and ingredients, a precisely controlled process and painstaking checks guarantee the high quality of every individual product**



**The core task of the control system is route control with large numbers of valve terminals, tanks and pipes**

Building section 12 is one of a number of production sections that work around the clock. Over the course of time, the plants have been expanded and modernized several times, in some cases with different automation and visualization systems. Thomas Dahl, project manager in the process control department at Zott in Mertingen, explained, "It's a true, evolved system environment." In the meantime, he too can look back on a wealth of experience at Zott, "We started around 20 years ago, at that time still working with a plant constructor. For the last three years, I have been directly responsible for various automation projects here at Zott." Among other things, Thomas Dahl has implemented several projects with the Sistar control system from Siemens. Sistar handles process operations in a wide range of different areas at Zott in Mertingen – including the whole operation from the cold milk section through to handover of the product to the filling machine in building section 12. Dahl explained, "The jobs are in our ERP system along with our entire material and data management. We report the corresponding jobs to the automation level and return the data relating to stock postings, material transports and completed process actions to the ERP system. We therefore need a control system that offers all the functions required to control and track the processes, so that it is also easy to use for our colleagues in the control room."

### Coordinated functionality

According to Dahl, this is where Sistar offers the right balance. "What we mainly like about Sistar is that, in comparison to many other systems, it does not offer excessive



**High season at the Gourmet Dairy: Depending on the season, up to 2.5 million liters of milk are delivered daily to the Mertingen plant.**

functionality, but exactly what we need." This includes, above all, Route Control. He added, "Route control is a core task of the instrumentation and control used in our process. We can also realize widely varying dosages and recipes, and control and monitor tanks and pipes. Our clean-in-place (CIP) systems are also automated with Sistar and Route Control in building section 12. In comparison to other solutions, the system has a number of advantages for our requirements."

For example, Sistar offers the option of easily tracking the progress of the job through step sequencers. This is an important feature not only for Dahl but also for Linder and his colleagues in the control room. In this way, at every point in time it can be exactly determined which dosages, mixing and heating processes have been successfully completed, and which is the next



**"The step sequencer analysis is a great help to us, especially when a fault occurs. In many cases, we can then help ourselves in the event of faults without having to call on our colleagues in process control." Patrick Linder, control room technician, Zott SE & Co. KG, Mertingen**



**Using the Sistar clients, employees can also access all the relevant process information on the production line itself.**

step. Linder stated, "It's a great help to us, especially when a fault occurs, because we can immediately see which conditions were polled, which have to run next, and where the process ground to a halt. In many cases, we can then help ourselves in the event of faults without having to call on our colleagues in process control."

Thomas Dahl and his colleagues also use the step sequencer analysis for troubleshooting and optimizations. Thomas Bissinger, head of process control at Zott added, "We also have the current version 7 of Sistar, with replay mode – another tool which enormously lightens our workload." Replay mode enables all relevant process data and parameters, including the corresponding process images and dynamics, to be played back later. Bissinger explained, "This enables an error to be understood in detail. For example, whether a valve was actuated at the time in question. And the entire error situation can be fully understood, without having to subsequently reproduce the sequence – which makes troubleshooting much more efficient." Previously, Zott could also analyze error situations on the basis of step sequencers and archive values. Thomas Dahl added, "But now we can, so to say, just look at a video of the relevant process state, which certainly saves us 50% of the time otherwise required for troubleshooting."

### Efficient teamwork across several locations

The control system at Zott in Mertingen currently comprises 25 Simatic controls, two redundant pairs of servers, and 28 clients. These clients and servers are implemented

as virtual systems – “That makes system maintenance easier for us in process control because the hardware side is maintained by our central IT department.” This allows Dahl and his colleagues to concentrate on their main task of supporting the many projects involved in process control. Because besides Mertingen, they also support the control systems at Zott’s production plants in Günzburg and in Opole in Poland, where Sistar is also in use. Dahl said, “Of course, we are frequently on site, but to save time we deal with a lot of things from here – and with Sistar that works very well thanks to good troubleshooting.” Not least of all because Sistar is extremely stable and reliable. Dahl explained, “Sistar really does run round the clock, 24/7 and 365 days a year. We really can rely on the system, even during conversions and integrations. Other control systems are often not so robust.” The last point in particular is so important to Zott because the company is continually optimizing its processes. Patrick Linder said, “Actually, there’s always a conversion or commissioning going on somewhere in our plant. And then I assist with the commissioning, conduct the appropriate tests, and discuss the results with those responsible” The goal is to make the entire production as efficient as possible – which means producing products with the high quality demanded while keeping losses



**“Sistar is exactly the right solution for us. It is absolutely stable, simple to configure and maintain, and troubleshooting is easy.”** Thomas Bissinger, head of process control, Zott SE & Co. KG, Mertingen



**“With replay mode, we’re certainly saving 50% of the time required for troubleshooting.”** Thomas Dahl, process control project manager, Zott SE & Co. KG, Mertingen

and the use of resources as low as possible. Dahl stated that a stable, reliable control system, such as Sistar, was an important factor.

### The preferred solution for new projects

Not only optimizations but also changes to the product range are part of everyday business at Zott – and that’s why one of the largest process control projects is currently running right outside the door: Zott

recently commissioned a new bakery in Mertingen. Current conversions as well as future expansions will preferably be implemented with Sistar. Thomas Bissinger said, “We’re using the latest Sistar version 7.5 in our bakery. The system is simply exactly the right solution for us. It is absolutely stable, easy to configure and maintain. Troubleshooting is made easy by the combination of step protocols, archive and message protocols and, in particular, replay mode.”

## 14<sup>th</sup> Global Dairy Congress 22-24 June, Location: Virtual

This 14<sup>th</sup> annual Global Dairy Congress will be hosted virtually, featuring two days of interactive conference sessions with a focus on the latest market developments, trends and opportunities, plus extensive time for informal networking and discussion.

For full event information and to register, visit: [www.zenithglobal.com/events/gdc2021](http://www.zenithglobal.com/events/gdc2021) or contact Zenith Events on [e\\_events@zenithglobal.com](mailto:e_events@zenithglobal.com) [t +44\(0\) 1225 32 79 00](tel:+44201225327900)



**Daniel Martin** (photo right, left: CFO Marcel Kuhn), 44, took over as CEO of Kalt Maschinenbau AG at the beginning of this year. Stephan Winkler will focus on his strategic role on the Board of Directors. Daniel Martin has more than 20 years’ management and sales experience with various companies in the technology and industrial sectors.

# TREIF Maschinenbau

## High-performance portion cutter FALCON evolution



With the FALCON evolution, TREIF offers a high-performance portion cutter (photo: TREIF)



Even difficult products can be precisely cut and inserted with the FALCON evolution (photo: TREIF)

**T**REIF Maschinenbau from Oberlahr, Germany, has been specialising in cutting and processing solutions for meat and cheese for years. The range of products offered by the globally present company with 100% Made-in-Germany includes machines and systems for dicing, grating, portion cutting or slicing.

In addition to solutions for lower throughput rates, as required in the retail sector, TREIF also offers high-speed lines with high throughput and continuously reliable accuracy. A further development in fix-weight portioning is the precision portion cutter FALCON evolution.

### Yield-optimised and ergonomic

FALCON evolution takes over the proven technologies of the FALCON hybrid+, which has long been established on the market. FALCON evolution cuts products into straight slices with optimised yield and with the weight or cutting thickness specified. The new generation of the FALCON family owes its high working speed in particular to the optimisation of the individual processes.

Operation is self-explanatory and the machine is characterised by a high degree of user-friendliness. Weight reduction of the accessories enhances ergonomics.

The FALCON evolution cheese portion cutter is designed to be highly flexible and unfolds its full performance in the overall line in combination with TREIF-robotics and different kind of packaging machines. The machine can process different types of cheese with very different consistencies.

### Product is stabilised

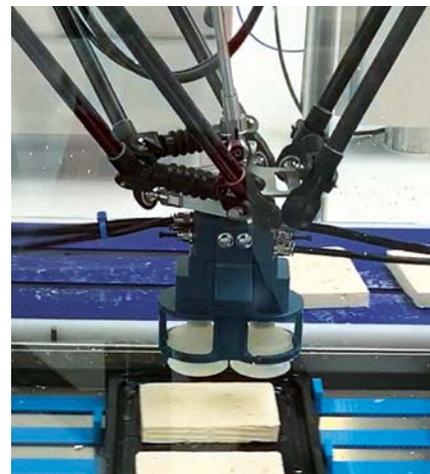
The target weight can be changed simply by selecting the programme on the display. The yield can be up to 100%, the giveaway is reliably below 1% according to the manufacturer, all of this at 250 portions per minute. An important component in terms of accuracy is the driven contour-controlled TREIF hold-down device together with the product gripper, which enhances product stability during cutting. The knife guidance is also controlled by the product contour.

### Highly automated

The entire process in the FALCON evolution runs inline with automatic pre-weighing

and precise 4D camera analysis, which accurately measures the product before cutting, thus ensuring constant output over the production period. A high degree of automation delivers consistent results independent of the operator. Easy access for cleaning provides a high standard of hygiene and thus also extends the product shelf life.

TREIF employs around 500 workers and has four business divisions: dicing and grating, portion cutting, slicing and bread slicing. TREIF is represented in over 150 countries through subsidiaries and sales partners.



TFREIF technical centre for test production runs (photo: TREIF)

# A new start?

## EU-UK Cooperation and Trade Agreement



Author: Alexander Anton, EDA Secretary General

**A**fter the more than painful divorce process, the UK left legally the European Union a year ago on 31 January 2020. The very last-minute conclusion of the EU-UK Cooperation and Trade Agreement, signed on 30 December 2020, hence 24 hours before the end of the transition period, had given some hope that the two partners would have finally understood that a pragmatic approach would benefit both sides. Once more in this process, the politics of the UK and the EU deceived.

Last October 9, a few weeks before the end of the transition period on 31 December 2020, we hosted a Brexit workshop to urge the negotiation partners to take our dairy concerns serious. We welcomed H.E. Katrina Williams, UK Deputy Ambassador to the EU, Peter Giørtz-Carlsen, CEO of Arla Food Europe and Brigitte Misonne, Head of Unit in DG AGRI (EU Commission). The speakers' interventions led to engaging conversations and showed a high

level of understanding of the special dairy situation with fully inter-linked supply chains between the UK and the EU.

In the follow-up of this workshop, both administrations underlined their commitment to solve our dairy issues and answered quite a few of our burning questions related to the end of the transition period.

The competent EU Commission and UK services acted. EDA President Michel Nalet stated "We raised our dairy concerns with the negotiating teams. Even if quite a few of our questions remain unanswered and even if some of the answers are not as precise as we would have wished, the partners underlined their commitment to the European lactosphere in taking the time to answer our questions. Our concerns were heard!"

In the last weeks of 2020, unprecedented efforts to reach a compromise to manage the end of the transition period were made by both sides of the negotiation teams. Over the past four and a half years, the negotiation teams, especially Michel Barnier led UK Task Force of the EU



Photo: nito – stock.adobe.com

Commission, worked tirelessly to secure a positive outcome. EDA welcomed the agreement on the terms of the future cooperation reached by the European Union and the United Kingdom. Continued exchanges with key MEPs during the last days of the transition period were crucial.

On December 30, we organized a high-level dairy call to analyse the UK-EU Agreement and we shared our first assessment of the EU-UK Trade & Cooperation Agreement (TCA) with the European and UK authorities.

The agreed EU-UK dairy relationship provides a rather solid basis for the continuation of our integrated lactosphere. EDA is also grateful for the consideration of the dairy industry's concerns and proposals that reflected in the TCA. Parts of our joint DairyUK-EDA proposals have been copied by the negotiation partners into the Agreement.

Nevertheless, we will face logistical and administrative obstacles under the new trading regime. The former German EU Presidency stated on 28 December 2020 that despite the in-principle 'no tariffs, no quota' approach, additional costs of close to €300 million per annum will impact the EU27 dairy sector under the agreement. The Republic of Ireland will be the most exposed to these extra costs. The threat of a significant decrease of dairy exports from the EU27 to the UK was underlined, which is likely to create turmoil on the European and global milk markets.

One of the asks in our 30 December 2020 letter, to assure a continuation of the UK Task Force of the EU Commission in order to have a single and direct contact point for all EU-UK dairy issues that may raise within the implementation process, was echoed in the meantime. This will help to pursue the frictionless dairy trade flows and uncork the full potential of the agreement for the benefit of citizens and the dairy sectors in the UK and in the EU. The European dairy sector counts on the preparedness of the EU Commission services to take appropriate and timely measures in case of market distortions. The Trade & Cooperation Agreement is very much welcomed but there is no room for complacency.

Since the EU and the UK found an agreement, concerns and issues regarding the well-functioning of the supply chain are being raised by all European and UK exporters. The current rules of origin lead to significant tariffs when European consignments are split in the UK hub before parts are being re-exported to the Republic of Ireland. On sanitary matters, the new rules for importing animal products into the UK are rather unclear. Indeed, in principle, products of animal origin must be, from the 1<sup>st</sup> of April, accompanied by a health certificate so they can have remote documentary checks. A number of operators are yet already confronted with request for health certificate by the UK importers, which is contrary to the new rules. The EU dairy sector is expecting an increasing number of logistical and administrative problems in the coming weeks and months, especially if additional certification requirements become necessary. The implementation phase, meant to end on the 1<sup>st</sup> of April 2021, must be used to agree to the application of the principle of equivalence.

On the basis of a shared common market history of 47 years, we asked the partners to reconsider the real need of new health certificates in the trade between the UK and the EU.

The EU-UK relationship post-Brexit still seems to be more shaped by a politicised debate than by a pragmatic approach. The latest turbulences show that the political sphere has not drawn the lessons to be learnt by the Brexit process.

EU-UK Cooperation and Trade Agreement – a new start? For the time being at least, this new start seems not the end of the political manoeuvres and is hence not yet up to the needs of the UK and EU dairy industry...

## SIGNATURE

More than 150m packages sold

SIG has sold over 150 million packs with its award-winning SIGNATURE, the world's first aseptic carton packaging material linked up to 100% to renewable materials. Alina Theissen Hageresch, SIGMarketing Manager Sustainability and Responsibility Europe: "Increased uptake shows that its strong environmental credentials offer customers an answer to consumers wanting more sustainable packaging alternatives as they seek to do their part for a low-carbon future." [sig.biz](https://sig.biz)

SIG has now sold over 150 million packs with its award-winning SIGNATURE, the world's first aseptic carton packaging material linked up to 100% to renewable materials (photo: SIG)



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(photo: DSM)

What's next in dairy?  
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(photo: E+H)

Accurate raw materials accounting  
**Technology/IT**



(photo: OPTIMA)

High-tech for the high-care sector  
**Packaging**



(photo: GEA)

Asia's largest milk powder plant  
**Site Report**

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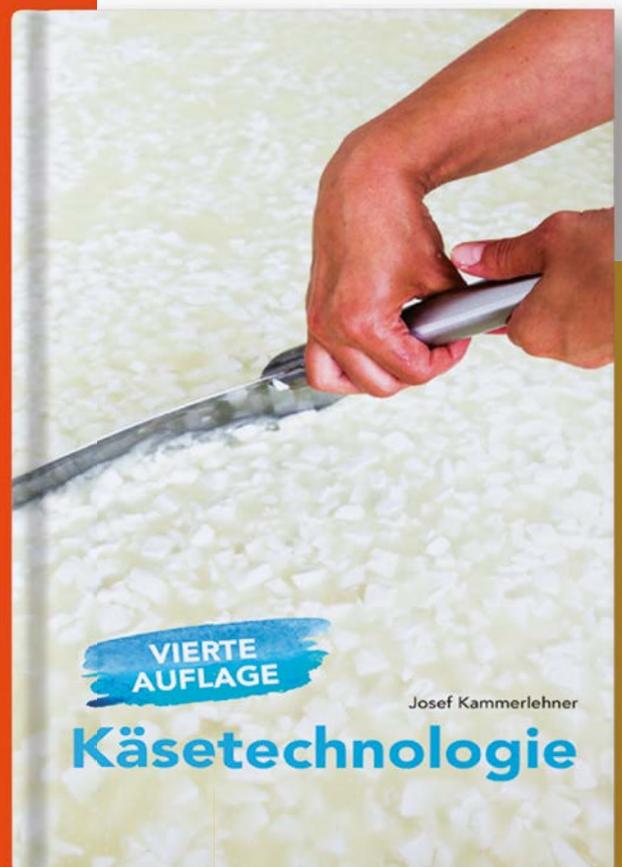
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