

I N T E R N A T I O N A L

DAIRY

magazine

IDM 4-5

April 2017

PROCESSING | INGREDIENTS | PACKAGING | IT | LOGISTICS

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Global Dairy Trade will stay THE benchmark

The internet auction platform aims at growth



Roland Sossna
Editor IDM
International Dairy Magazine
sossna@blmedien.de
international-dairy.com

Global Dairy Trade has not been setting, but – let's say benchmarking the worldwide prices for dairy commodities for almost a decade. From a relative small start with only Fonterra behind it selling WMP only, Global Dairy Trade has developed into a platform that trades eight commodity items from a handful of manufacturers that belong quite naturally to the biggest exporters of milk products in the world.

In 2016, Global Dairy Trade has sold an astonishing 636,000 tons of product, generating sales of more than 1.7 billion US dollars. During the past few auctions, the amount of product traded was always higher than 20,000 tons. But although there is butter, cheese (Cheddar) and a few other products in the portfolio, in terms of volume, the by – far biggest items in all these auction events are WMP and SMP. And most probably will always be. This means that the average price calculated across all the commodity sales, which is so prominently displayed whenever one of the fortnightly auctions is closed, does in no way reflect what one might call market reality. This thesis also applies if one takes a look at worldwide dairy trade that is about a 14 times bigger than what Global Dairy Trade is moving. Most of the products are directly traded between manufacturers and their customers. The reason for this is quite simple. Global Dairy Trade can only sell standardised produce while customer-specific made products cannot be traded at a more or less anonymous internet auction.

Nevertheless, there is still much in store for Global Dairy Trade. To overcome the problem posed by minimum quantity requirements, Global Dairy Trade now aims at pooling the offering of smaller players in kind of a multi-seller bundle. This should attract more sellers to join the auction platform. The auction itself promises that this will “enable greater confidentiality of commercially sensitive information”. This, of course, has yet to be seen. It seems hardly conceivable that the addition of a number of small offerings to the overall offering will provide more transparency. But transparency is not good for a market that is exposed to speculation, anyway. In my opinion, Global Dairy Trade is a good thing and it should be established if the industry had not yet done so. But it always will stay a benchmark for pricing and should never determine the price levels in domestic markets, thinks Roland Sossna.



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Package with Augmented Reality

Elopak's Partnership with Worth Keeping opens a new dimension of communication



(photo: Elopak)



Unlike virtual reality, which creates a totally artificial environment, Augmented Reality uses the existing environment and overlays it with extra layers of new digital information (photo: Elopak)

Augmented Reality is a rising technology that can get consumers to look at your packaging for longer, interact in a more deep and personal way with a brand, and literally bring a brand to life.

Often abbreviated to AR, Augmented Reality is the integration of digital information with the user's environment in real time. Unlike virtual reality, which creates a totally artificial environment, Augmented Reality uses the existing environment and overlays it with extra layers of new digital information such as videos, animations and sounds that will come alive on your mobile or tablet device.

Partnership offers Elopak customers AR

Elopak has entered a strategic partnership with Worth Keeping, one of the leading European

companies in this sector, located in Denmark. With this collaboration, Elopak can offer customers state-of-the-art communication solutions.

"Augmented Reality is a door to a new dimension in on-pack communication," explains Bjarke Ravn-Christensen, Director Operations Region Europe & Mediterranean. "When added to our packaging it can open a world of possibilities to give consumers more content and information, and entertain through videos, speaking narratives and even music. It can create opportunities to interact with end consumers and link to other media channels such as YouTube, Tumblr and Facebook expanding the communication reach from just one carton."

The 4DScan app

The digital information is visible through mobile or tablet devices and is enabled by the 4DScan App which allows the user to access and browse the

digital interactive experiences. The 4DscanM app is provided by Worth Keeping and is available to download on iOS and Android, and also works on most tablets. The app is easy to use: once downloaded from Google Play or App store, point the camera of a device onto what is called a 'target point' on the pack, which can be printed logos, icons, pictures etc., and the app will scan automatically and activate the content immediately.

A world of possibilities

By implementing AR into the design of a Pure-Pak carton, brand owners can communicate with their consumers through the digital world of tomorrow – changing how they interact with, use and think about products.

"The opportunities to be creative, add value and create an impression are immense," adds Astrid Näscher, Marketing Director Region Europe & Mediterranean. "Films, 'infotainment' or other visual and sound formats enhances the sensory brand perception. We can turn the Pure-Pak carton into a multi-dimensional communication vehicle for highly creative marketing and promotions. The opportunities are endless."

Other ways of using AR with a carton include providing more information on product ingredients, production methods, nutritional and allergy information and new convenient packaging features such as those provided by our Pure-Pak Sense cartons.

Benefits and opportunities

More ideas how to bring your brand alive on a Pure-Pak carton:

- Trigger re-purchase by adding recurring and cross-linked promo activities, campaigns or discount schemes
- Build brand loyalty and add value through recipes, cooking demonstrations or how best to store a product
- Cross-sell within brands by adding advertisements about other products
- Entertain kids – Influencing the next generation of consumers through games, 'infotainment'
- Demonstration of new packaging feature i.e. the easy-to-fold lines on the Pure-Pak Sense carton
- Creating the opportunity through links to social media for consumer to enter contests or provide feedback

Smart choice: Flexible and customized

Elopak, through its partnership with Worth Keeping offers flexible customized technology

that can enable easy and frequent changes in digital content – without having to change the packaging design. This brings cost and resource efficiencies and reduces waste.

The ability to change content as desired including reacting to news and events, creates a highly flexible tool which with its vast opportunities for creativity and the ability to measure its success, can transform packaging into a dynamic marketing tool that is set to revolutionize the industry.

"Augmented Reality is a new way for consumers to actively search for and find out about your product and compare them to competitors in the market," adds Bjarke Ravn-Christensen. "It opens a steering window across your portfolio through cross-promotions, discount coupons or even serving suggestions. "Augmented reality is not just about brand building and creating consumer loyalty – it is a very cost efficient and environmental friendly way of communicating with your consumer and generating sales."

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- flexibility
- reliability
- product safety
- comprehensive



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& wrapping machines



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- flexibility
- high packaging quality
- accuracy
- ergonomic

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interpack: No other trade fair in the world presents the entire supply chain. At no other trade fair does the packaging industry provide all sectors with tailored solutions and innovative designs based on such a variety of materials, and it is, of course, THE event for the packaging industry.

interpack 2017 is recording the highest demand among exhibitors in its history of over 55 years. 19 halls will house around 2,700 exhibitors from 4 to 10 May 2017, coming from about 60 different countries.

interpack 2017 will put the focus on "Industry 4.0". A special show will take the form of a Technology Lounge at the VDMA stand, featuring examples of solutions in packaging machinery and process engineering and opening up new opportunities for applications in security, traceability, copying and counterfeit protection as well as in customised packaging.

As before, SAVE FOOD will play a role at interpack 2017. A special show called innovationparc (Innovation Park) will be held, with packaging ideas and solutions designed to reduce food losses and waste. The innovationparc will include a presentation forum which can be used by companies to showcase their ideas and solutions.

The first day of the trade fair will also feature the third international SAVE FOOD convention, held in partnership with the UN Food and Agriculture Organisation (FAO) and the United Nations Environment Programme (UNEP).

« Online services »

www.interpack.com contains useful resources to help visitors prepare and plan each day at the trade fair efficiently. These resources include an exhibitors' database with the option of compiling a personalised hall plan as well as a "matchmaking" function to contact exhibitors and to receive news of companies represented at the trade fair. The site has a responsive interface which also adjusts itself to a small display on a mobile device.

In addition, a visitors' app is available for iPhone and Android users. Its functions include the exhibitors' and event database, updated on a daily basis, graphically optimised hall plans and exhibitors' details, including contact details and product information, an appointment form and the option of adding customised notes to exhibitors' entries. The user's settings and notes are available on all platforms, regardless of the device where they were originally created.

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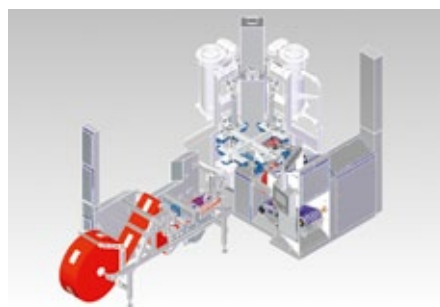
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4 – 10 May, Düsseldorf, Germany

IDM has compiled information about especially interesting exhibits on the following pages to help you prepare your visit to interpack.

« BEHN + BATES present CARE-LINE »

BEHN + BATES present the Roto-Packer Adams CARE-LINE Edition that forms hygienic plastic bags from the reel. Hygiene was the focus for developing the complete machine concept. The number of components is minimised, there are no parts or screws over the bags that might fall into the powder, all angles are slanted, all edges are round. The machine offers almost no chances for product dust deposits. behnbates.com



**In the Roto-Packer Adams CARE-LINE Edition
it's all about hygiene (photo: BEHN + BATES)**

« Bosch: Integrated topload cartoner »

Increasing the convenience it offers to customers, Bosch Packaging Technology – in partnership with recently acquired Kliklok

Corporation – will introduce the Kliklok ITC. The new development boasts one of the highest speeds available for a solution with such a small footprint, and has a large carton size range. This allows manufacturers to save production space and increase product output without compromising on quality.

Comprised of a single fully integrated solution with three functions – carton forming, loading and closing – the machine helps to reduce customer footprint with an ergonomic design, avoiding the need to source three separate pieces of equipment, to interlink and integrate them. bosch.com

« Domino: Rewriting the rules of coding and marking »

Domino Printing Sciences will present the recently-launched Ax-Series range of continuous ink jet (CIJ) printers, along with a host of coding and marking technologies ranging from fibre laser and thermal transfer overprinting systems to digitally printed label samples.

The Ax-Series comprises the Ax150i, the Ax350i and the Ax550i, a range of high-tech CIJ printers tailored to a wide variety of requirements. David Croft, Global Product Marketing Manager for CIJ at Domino Printing Sciences, elaborates further on the Ax-Series: "Domino has rewritten the rules of coding and marking by revisiting the underlying science behind CIJ and introducing innovations in three key areas, which we refer to as 'pillars'. These pillars of innovation are the new i-Pulse print head and inks, the



The Ax-Series comprises the Ax150i, the Ax350i and the Ax550i, a range of high-tech CIJ printers by Domino (photo: Domino)

i-Techx electronics and software platform, and Domino Design, a fresh approach to the total product design to maximise productivity and ease of operation."

The i-Pulse print head controls individual ink drop formation to create perfect drops, delivering significant advances in droplet accuracy, placement and ink usage for reliable, high-speed and consistent code quality.

i-Techx is Domino's latest high-performance electronics and software platform. It is designed to optimise customers' return on investment throughout the printers' lifetime and eliminate coding errors by enabling the smooth integration of the Ax-Series into the production line and service support environment.

Domino Design summarises the company's holistic design approach that delivers a step change on the current generation of CIJ systems in the market to deliver printers that are robust, reliable, and easy to use even in the harshest environments.

Domino's Digital Printing Solutions division will also have a presence at the show. The company will be displaying 'Textures by Domino', a vibrant range of digitally textured labels. domino-printing.com

« Fraunhofer IVV Dresden: Efficient cleaning »

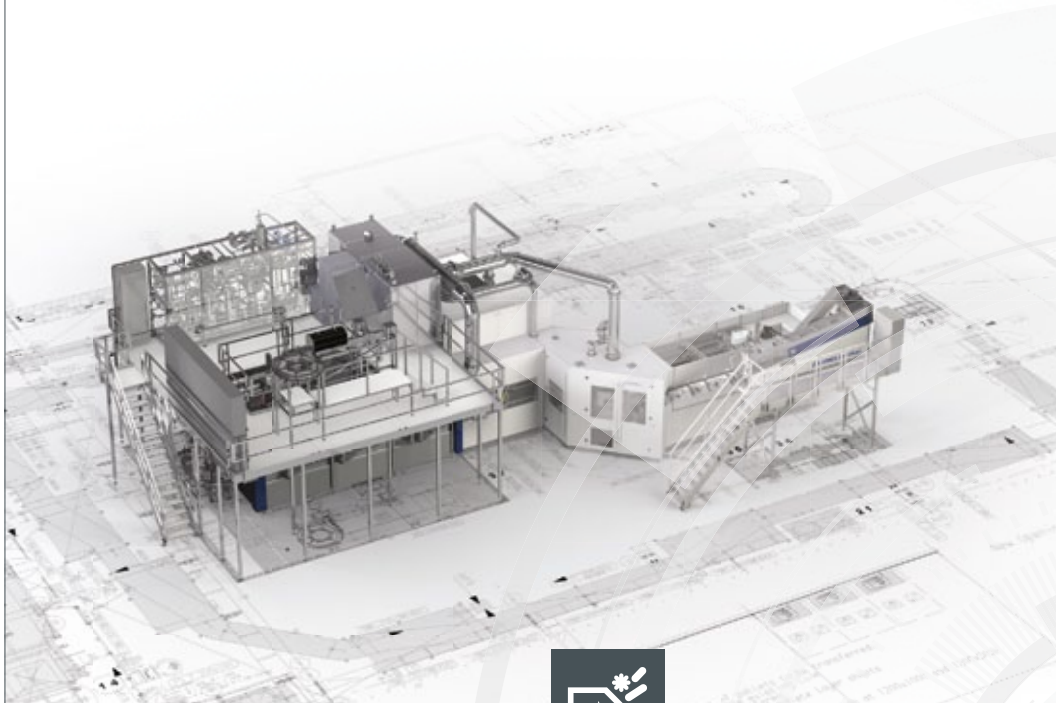
Fraunhofer IVV Dresden will show a new mobile cleaning device for packaging lines that combines automated cleaning with the flexibility of manual cleaning.

The "Mobile Cleaning Device" (MCD) is equipped with an optical sensor system for dirt recognition which makes adaptive clean-



Domino's Digital Printing Solutions division will be displaying 'Textures by Domino', a vibrant range of digitally textured labels (photo: Domino)

interpack 2017
Düsseldorf, 4 – 10 May
Hall 14, Stand E33



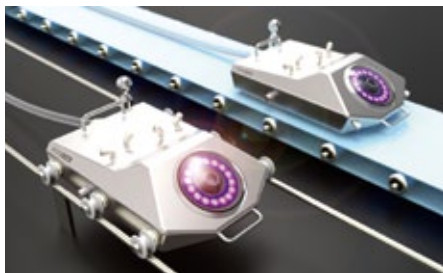
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ing possible. The MCD can move on its own or use existing conveying systems. Cleaning of a whole line as well as of only parts of the line is possible. ivv.fraunhofer.de



Fraunhofer IVV Dresden will show a new mobile cleaning device for packaging lines (photo: Fraunhofer IVV Dresden)

« GERNEP: Labelling systems »

The well-established labelling machine manufacturer GERNEP presents latest developments of its rotary labelling machines.

To meet all decoration demands in different industries, the rotary labelling machine GERNEP SOLUTA – in the optimized control and security design – is the ideal solution for self-adhesive labelling, GERNEP LABETTA is specialized in universal cold glue labelling and GERNEP ROLLFED and GERNEP ROLLINA in efficient hot melt wrap-around labelling.

It's also possible to combine all labelling systems – cold-glue, hot melt and self-adhesive. Thanks to the possible combination there are hardly any boundaries in any kind of compilation. For flexible use of different container formats, GERNEP provides alternatively servo driven bottle plates for all labelling machines.



The SOLUTA rotary labeller for use of self-adhesive labels will be on display at interpack (photo: GERNEP)

GERNEP-rotary labelling machines are characterized by their flexibility in the equipment, precision and quality workmanship "Made in Germany". gernep.com

« Ishida: Packing solutions versatility »

Highlights at Ishida's stand include the company's newly-launched advanced X-ray inspection and leak detection models. On show in the Inspection area of the stand, Ishida's new IX series X-ray range "raises the bar in performance and usability", offering customers easy maintenance, stress-free operation, and a robust fail safe system that prevents a contaminated product reaching the consumer to minimise the potential for costly recalls.



Ishida will present its newly-launched advanced X-ray inspection and leak detection models (photo: Ishida)

« KHS: New InnoDry Block »

The KHS Group will have compact and flexible systems on display. With its integrated buffer system the newly developed KHS InnoDry Block permits accumulation-free, gentle pack conveying without the side guides otherwise required. This does away with the need for adjustment during format changeovers. The systems supplier from Dortmund will also be highlighting its new features in secondary packaging. To this end, at the trade show KHS Service will be presenting special conversions and its new service concept for packaging machines. Visitors can study KHS plant engineering close up on Booth A31 in Hall 13 at interpack.

The KHS InnoDry Block combines a packaging machine with a palletizer and has a handle dispenser integrated into the packer. This setup is made possible by especially flexible buffer areas and the use of a highly dynamic handling system for layer formation which is being used in the blocked machine concept for the first time. Shorter conveying segments and, as a result, a considerable reduction in maintenance effort speak for the



For the first time on a beverage filling line a highly dynamic handling system is being used on the KHS InnoDry Block to create precise layer patterns (photo: KHS)

compact block. Format changeover times are also shorter as side guides are no longer needed on the conveying segment.

Norbert Pastoors, executive vice-president of Operations, finds it important to emphasize that KHS has the right system for every requirement. "Under the motto of 'smart multipacks' we take a flexible approach to all specifications. First and foremost is the concept of convenience. All of our packaging is distinguished by its convenient handling and is easy to open." KHS also retrofits conversions into older packers and palletizers so that these can also produce FullyEnclosed film packs, for example, helping to save on tray material.

KHS now offers its own consumables, providing customers with consumable goods which are precisely tailored to their requirements. These include lubricants and adhesives for labeling and packaging, for instance. khs.com

« Flexible packaging virtuosity in the "House of Krones" »

The "House of Krones" will constitute the five core sections of Krones AG, Neutraubling, Germany: digitisation as the roof and superstructure, process, filling and packaging technologies, plus intralogistics, as the functional premises, and Lifecycle Service as the base, the solid foundation.

In terms of machinery, the principal focus at the interpack will be the Varioline packaging system, which has proved highly success-



The Varioline can handle even up three-stage packaging processes, thus replacing up to six individual machines (photo: Krones)

ful in gaining widespread acceptance among bottling and canning companies. The firms are frequently tasked with first placing individual containers in multipacks, and then packing these in suitable sales or secondary packaging. This necessitates maximised flexibility. A single machine replaces up to six conventional individual machines with conveyors. With the Vari-

oline, up to three-stage packaging processes can be implemented with just a single machine. Space savings in the layout, reduced maintenance outlay and fewer operators are the logical consequences. The modular Varioline kit consists of three units: cartoning module, feed module, and basic module, which can be combined to form a customised packaging system. This modularised construction also offers flexibility for the future. The machine handles up to 52,000 containers per hour. krones.com

« Linx: Coding expertise »

The new Linx 10 is a compact and totally portable entry-level CIJ printer. It has been particularly designed for smaller businesses that need to code products for the first time or whose potential for business growth is hampered by the use of less flexible, non-digital coding methods. The portability of the printer also means it can be used as a back-up machine for experienced CIJ users, which can quickly be moved and set up wherever required, and its compact dimensions will

benefit packing lines where space is an issue.

Linx's thermal transfer, thermal inkjet and case coder ranges will also be demonstrated. The Linx IJ375 case coder is able to cut production costs while maximising line uptime and print quality for the coding of secondary packaging. Its patented ReFRESH ink system, robust design and printhead protection technology mean significantly reduced downtime and savings on consumables. linxglobal.com


« MULTIVAC: Portion packs »

MULTIVAC will be showing an economical solution for producing portion packs, which are the focus of many current trends. MULTIVAC has equipped the R 145 thermoforming packaging machine with an innovative shape and contour cutter. The H 052 handling module is used to converge the packs and feed them to downstream process equipment.

The innovative solution from MULTIVAC enables even small businesses or companies, for which the systems available up to now on the market have not repre-

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MULTIVAC will be showing an economical solution for producing portion packs (photo: MULTIVAC)

sented an economically viable solution, to produce portion packs such as jams, salad dressings and sauces very cost-effectively and highly efficiently.

MULTIVAC will also show the I 410 as a space-saving inspection system positioned on a conveying belt. The I 410 is available in hygienic design. multivac.com

« Schäfer & Flottmann: Format flexible carton erector »

Schäfer & Flottmann highlights the High-Capacity Carton Erector SFS 350 which so far is primarily installed in the beverage industry but is recommendable for all other packaging fields as well. The completely servo-driven machine prepares up to 60 cartons per minute from flat blanks which in a wrap-around procedure are folded and glued around a mandrel.

The machine with infinitely variable capacity and visualization of the actual state by graphic screen is characterized in particular by its high format flexibility. Cases can be produced with inner dimensions of 122 x 87 x 160 mm up to 407 x 309 x 400 mm (L x W x H), in square as well as in octagonal design. sfs-net.de



Carton Erector SFS 350 by Schäfer & Flottmann (Photo: Schäfer & Flottmann)

« SICK: Quality is not a vision »

SICK will present itself as the supplier of a wide range of sensors for the consumer goods industry. The products, systems and services that it puts on display will include compact, easily integrated devices, configurable stand-alone solutions and programmable high-speed cameras. As well as individual components, the sensor manufacturer offers a



At Interpack 2017, SICK is presenting itself as a supplier of a comprehensive range of high-tech solutions for the packaging industry (photo: SICK)

comprehensive portfolio of technological solutions to meet individual customers' requirements.

SICK will focus in particular on quality assurance. A 3D inspection system is the ideal solution in this area. It can reliably identify faulty product features, incomplete packaging units and inadequate labeling. The data and measurements produced by the vision sensors and their integration into real-time fieldbus environments enable them to provide valuable information that can be used in today's manufacturing plants and in the smart factories of the future. The vision sensors have the necessary intelligent detection, measurement, assessment and communication functions to allow for future-proof process and quality controls in the context of Industry 4.0. sick.com

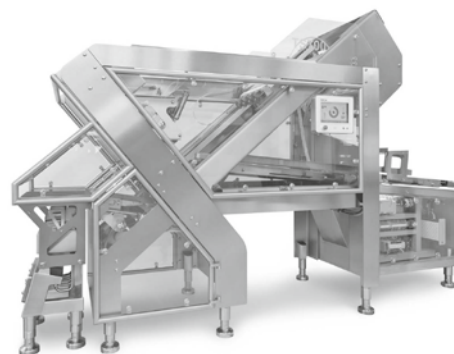
« RPC: Skills and diversity »

WaveGrip, the first genuine alternative to current beverage multi-packing solutions, and the WorldStar-winning Twist Cup with screw lid, the latest in a long line of award-winning packs, are two of the highlights of the RPC Group stand at this year's interpack.

The company will also demonstrate its expertise in polythene film products through RPC bpi Group as well as its capabilities in mould design and manufacture. A major theme on the stand will be RPC's design and technical expertise in the creation of containers and closures, demonstrating plastic's flexibility in producing solutions that deliver both superb aesthetics and complete functionality. rpc-group.com

« Textor: Smart & Easy »

Textor Maschinenbau will present their Slicer technology under the motto "Smart & Easy".



Textor will present the compact TS 700 slicer (photo: Textor Maschinenbau)

The machines combine excellent quality and finish with a functionality that is reduced to the essential. High performance and ease of operation are the results. Textor will show the slicer models TS 700 and TS750 which come in a simple and compact design. textorweb.com

« Trepko: State-of-the-art equipment »

Trepko Group, with a display area of 400m² will be showcasing their cutting edge foodstuffs packaging equipment. Continual investment in R&D, combined with experiences gained from machines operating worldwide ensures that Trepko Group offers the latest technology and solutions to meet customer needs and maintains our position at the forefront of our industry.

Trepko will be presenting state of the art solutions in the form of complete packaging lines and stand-alone machines.

Filling and closing of pre-formed containers and placing them into a tray

A highly efficient tray erecting machine (720 Series) integrated with two independ-



Trepko will show state-of-the-art filling and packaging technology (photo: Trepko)

ent packing lines at the same time (246KSP Rotary Machine with 760 Pick and Place and a 106KSP Aseptic Inline Machine with integral Pick and Place).

Brick Forming and Wrapping Solution

822 model Brick Packing and Wrapping Machine integrated with Wrap Around Packer (710 Series) offering a complete solution for forming and wrapping bricks of butter or similar products.

Forming, Filling and Sealing

Complete line consisting of Forming, Filling and Sealing Machine (9000 Series) with integral unit for top loading of products into cases (Pick and Place 760 Series and Wrap Around Packer 710 Series).

In addition, stand alone displays of the following machines will be on view:

- 6-lane Forming, Filling and Sealing Machine for 15g product portions (9000 Series).
- Trepko Groups highly efficient Ultra Clean Bottle Filling and Closing Line (3000 Series).
- Bottle Filling and Closing Machine (3000 Series). trepko.com

« UNITED BIOPOLYMERS:

Starch-based bioplastics »

United Biopolymers will present the patented German BIOPAR Technology, aimed at compounders and brand owners. The firm states its technology could replace 90% of today's PE applications and ena-



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bles reaching new markets and innovating with bio-based, biodegradable, and bio-neutral plastic. On other hand, FMCG brand owners will meet end-users' demand for "greener" plastic packaging. "Our target is to produce 300,000 Tonnes of bioplastics by 2021," Marc-Henry De Jong, United Biopolymers CCO told IDM. united-biopolymers.com

« Volpak: New pouch machine »

Volpak will introduce the SI-440 pouching machine, adaptable from projects re-



(photo: Volpak)

quiring the large production of small and medium-sized formats to batches requiring large sized pouches. The increasing demand from consumers to get convenient packaging has been considered, as the launch of the Volpak Stand cap pouch solution is adapted to different filling technologies and hygienic executions, such as hot fill, clean, ultraclean or extended shelf life. The new offer can be easily adapted to package such products as dairy creams, condensed milk, chocolate cream, etc. Enflex, Volpak's brand specialized in horizontal pouching machines, will release the STD-14, a horizontal Stand Up pouch machine, specifically set up for viscous liquid products. volpak.com

« Weber: Worldwide. Close to the customer »

Weber Maschinenbau will show new developments and services in their slicer and automation portfolio. Under motto



Weber will show the award-winning Slicer S6 (photo: Weber Maschinenbau)

"Worldwide. Close to the customer" the company will present innovative technology, flexible solutions and services from that food manufactures can benefit around the globe. The Weber Shuttle System will be shown live in a Ready Meals production line. The system is suitable for entry solutions as well as for complex installations. Furthermore, Weber will show the Slicer S6, that has received the iF Design Award, in combination with a compact interleaver. weberweb.com

Marketing cooperation drinktec cluster and fairtrade

drinktec cluster and fairtrade are to cooperate for all of their show the events. Messe München's drinktec cluster includes international subsidiary trade shows in South Africa, India and China, and fairtrade organizes specialist trade fairs in Ethiopia, Ghana, Nigeria and Iran. With immediate effect, the two cooperation partners aim to mutually support their re-

spective trade fairs through corresponding marketing and sales activities. With their combined expertise in beverage, food and packaging technology, the intention is to expand and strengthen the individual events of both partners.

The following events will be held this year: agrofood Nigeria, from March 28 to 30, 2017 in Lagos; iran food + bev tec from

May 23 to 26, 2017 in Tehran; drinktec, from September 11 to 15, 2017 in Munich; agrofood West Africa, from December 5 to 7, 2017 in Accra; and drink technology India, from October 24 to 26, 2018 in Mumbai.

Further, general information about the events: drinktec.com

drinktec

(photo: Purefood)



Lycka frozen yogurt for vegan Millenials BioFach

Purefood, a young German company, presented its new bio vegan and non-vegan frozen yogurt ("froyo") and bio gluten free ingredients bars (Mini Riegel Power) at Biofach. Trade visitors were attracted by the social engagement of the firm as one Lycka product sold means one school meal donated in Burundi. Launched in 2014 by three entrepreneurs, Purefood successfully achieved its products placement in 2,500 stores in Germany, Austria and in Ukraine. "We are looking forward to achieving 5,000 stores in 2017", said Sven Perten, Purefood Marketing Manager. When it comes to ingredients sourcing, yogurt comes from UK organic farming. lycka.bio



The right nutrient premix SternVitamin

SternVitamin, specialist for customized vitamin and mineral premixes, will present individual micronutrient premixes for different target groups and needs at Vitafoods. The health and lifestyle concepts range from bone health through strengthening of the body's defences and the cardiovascular system to beauty support. One example is the new Relax Premix directed towards people at work and also students preparing for examinations. It helps achieve relaxation on hectic days at work without causing sleepiness. sternvitamin.de

Tasty superfood boost from Slovenia BioFach

Slovenian Nutrisslim company presented at Biofach its vegan 100 % plant-based protein powders and supplements focused on Sport Nutrition. Displayed in a 450gr flexible and zipped poach, the powder can be easily mixed with milk or water, then drunk after the exercise. Proteins-based nutrition play a crucial role in the growth and maintenance of muscle mass. Besides this, "taste is, according to a consumer's tasting panel, our best differentiating factor compared to a US leader within our segment," shared Jernej Bolka, International Sales Manager to IDM. Formulation is also another winning-factor and some of Nutrisslim products ("Meal replacement") contain over 30 superfood & nutrients. These powerful products are also free from soya, gluten and dairy. Currently present in 30 markets, Nutrisslim's turnover forecast is to reach € 3,5 million in 2017, and looks for new business deals in the UK. nutrisslim.com



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Surprising ideas presented at interpack

GRUNWALD



GRUNWALD will show their new developments in hall 6, stand D02 at interpack on the basis of 3 exhibition machines. These machines are technical innovations uniting maximum flexibility and maximum production speed.

This especially applies to the 8-lane cup filler type FOODLINER UC (Ultraclean). According to the manufacturer, a completely new hygiene design for inline machines was developed which meets maximum hygiene requirements for ultraclean cup filling machines. This machine is considered to be a real alternative for an aseptic machine as this hygiene solution does not use complex aseptic technology and therefore no peroxide.

Various technology components guarantee the optimum combination of assembly groups, design know-how and innovative technology. This results in a fluent master plan for a very format flexible filling based on the maximum possible hygiene standard and a production speed of up to 50,000 cups/h.

Double-pulsed UV(C) high-performance radiators guarantee a sterilization rate of at least log4 for all standard cup sizes used by the dairy industry, sometimes even

≥ log5, at the maximum production speed. The pre-fillers and main fillers are in aseptic design (EHEDG certified) and are in accordance with guideline 89/392/EEG of the EU as well as DIN EN 1762-2, ISO 14159 and EHEDG guideline. The laminar cabin designed as hygiene tunnel with clean room class 5 (Hepa filter EN ISO 14644) makes this hygiene solution perfect.

Principal component of the master plan is the newly designed hygiene area with maximum possible reduction of parts.



8-lane inline cup filler GRUNWALD-FOODLINER 20.000 UC (Ultraclean) with the new and reliable hygiene concept (photo: GRUNWALD)

All drive components, all supply lines and almost any assembly group from the cup storage up to the final interface defined by the customer are located outside the newly designed hygiene area. Except for the filling nozzles of the filling stations there are hardly any parts in the hygiene area. The area where the cups are still open does not contain any small parts such as e.g. suspended screws. Thus very high production reliability is guaranteed.

The exhibition machine ROTARY XL represents the next generation of rotary-type bucket filling machines. It is a high-performance bucket filler which is independent of formats and needs almost no change parts.

When developing this machine solution the focus was set on the further reduction of space and standstill times, increased flexibility and even more convenience. The frame dimensions of 2,200 x 2,200 mm are sufficient in order to mount the stations bucket setter, bucket control, steam peroxide sterilization, weigh-cell controlled filling station, cutting/sealing station for peelable film, UV sterilization for the sealing film as well as stations for leak test control and

snap-on lids. For mounting these stations on a linear machine a length of at least 6 metres would be required. State-of-the art technology reduces the changeover time by approx. 70 % compared to inline machines and allows for an increase of the production speed by up to 25 %, depending on the product.

The changeover of the complete machine can be carried out within only 3 minutes. The change of the packing materials is also considerably facilitated due the technology used. The operator only has to exchange the buckets. The bucket magazine is automatically adapted to the new cup size by the push of a button. The cup slats which were developed especially for this machine are suitable for several packing material dimensions. The existing technical knowhow, the experiences with regard to the coaction of machine technology and nature of packing material and sealing film allow for the closing of the buckets with peelable film from the reel. This is a further user-friendly innovation.

The 2-lane cup filler type HITPAC AKH-019SE completes the range of exhibition ma-

chines. In case of this rotary-type machine special attention was paid to the integrated inline fruit mixer. This is an interesting technical solution for those who fill dairy products with different flavours resp. who frequently have to change the fruit types. This integrated inline fruit mixer reduces the product loss and product changing time to a minimum. Depending on the equipment of the cup filler the changeover either takes place fully-automatically by the push of a button or manually within only a few minutes. The customer can choose between very simple and low-cost design up to fully-automatic CIP/SIP design.

Compared to separately connected mixing units the advantages are the relatively low investment costs and evidently the reduced production costs but at the same time the increased flexibility.

This technology is ideally suited for the use on rotary-type and inline machines. It is available for filling up to 6 types of fruit and offers a very flexible filling of the cups. Each of the various filling options can be started by the push of a button on the display. According to requirements products with different



The new format independent rotary-type bucket filler GRUNWALD-ROTARY XL (photo: GRUNWALD)

flavours can be filled. Due to the technical knowhow and the flexibility of the filling machine it is possible to fill the mixed cartons with different product assortments already

within the machine. The expensive, subsequent sorting and repacking of the filled cups in the cartons is no longer necessary. grunwald-wangen.de



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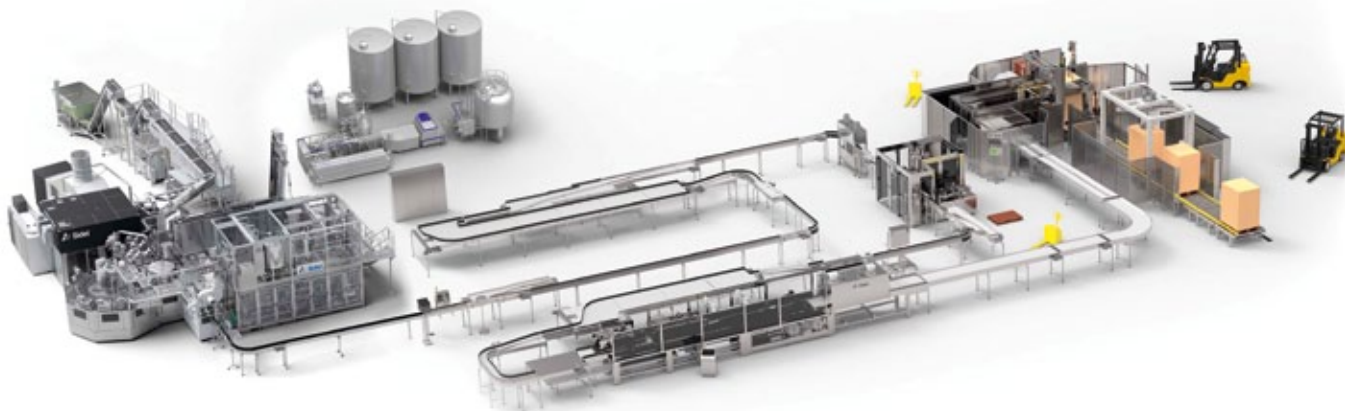
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PET complete solutions for aseptic applications

Sidel



Sidel and TPPS have been combining competencies and expertise to define and execute almost 100 complete lines projects (photo: Sidel)

The increasing consumption rates of juices, nectars, soft drinks, isotonic and teas (JNSDIT) and liquid dairy products (LDP) – growing respectively by 6% and 5% y-o-y – provides significant business development opportunities. The use of PET in these market segments continues to increase, with an annual growth of 3% expected for the JNSDIT sector and 8% for LDP by 2020. Producers can enlarge their bottling capacity or diversify their production with more value-added products in PET to maximise this market potential.

By partnering with Sidel, producers work with a single, market-leading supplier and can leverage an extensive 40 years of aseptic packaging expertise. Meeting producers' needs via fully connected aseptic lines requires an approach that is both holistic and flexible. The company's fully integrated and technically advanced solutions employ the processing equipment and capabilities of Tetra Pak Processing Systems (TPPS) – the original inventor of aseptic technology.

At five packaging centres and four in-house R&D labs around the world, Sidel aims to cre-

ate value in every phase of the supply chain. Based on the customer's individual specifications, supply chain conditions and product goals, Sidel designers provide everything to turn a producer's wish from idea to reality, creating innovative packaging to protect product quality and give the finished product a memorable and differentiating look. Those

packaging solutions maintain optimum line performance using less material and energy, yet increasing product shelf life and always delivering a great consumer experience.

Sidel's complete aseptic lines are able to take advantage of a wide range of versatile, reliable labelling and packing solutions to help beverage producers to attract and differentiate, while ensuring sustainable production. Whether roll-fed or sleeve labels are required for aseptic beverages, Sidel labellers can handle any label format with fast, consistent roll-fed labelling or efficient, high-quality, heat-shrink sleeve labelling. Whether shrink-printed film, nested packs or wrap-around cartons are required, it is important to keep this layer appealing, strong and functional. Sidel flexible secondary packing systems offer reliable pack consistency and durable quality, while the company's palletising solutions and compact robotic solutions, with high production speeds and multiple patterns, handle a variety of products, packs and layers with easy operation and greater line versatility.

www.sidel.com/aseptic-lines



Sidel's PET aseptic filling solution with dry preform decontamination ensures product integrity, production flexibility, cost efficiency and sustainability (photo: Sidel)

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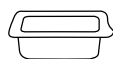
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For longer shelf life and higher quality products

CIP – An important ally



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Food and beverage industries have followed through time different policies confronting the necessity of a CIP system. Initially, regulatory mandates were formed and EC Directives were issued undertaking the role of the base for allowing inspection of conformity to the essential

requirements of high level hygiene in the production environment. After a long period of harmonization trials food processing companies show evidence of CIP usage appreciation, as they start to consider such a cleaning unit as a non-extractable cornerstone in the foundation of the production line.

The common mistake that industries make during the chase of achieving higher quality products and longer shelf life, is that they focus on production machinery and network equipment, excluding the CIP system. Precluding the cleaning parameter and degrading the importance of it can lead to serious malfunctioning and financial loss. The CIP unit should be considered as an important element of the production process and thus one of the most effective spearheads of the industry's artillery at the battle against fouling and product contamination.

This holistic approach has been enhanced due to the fact that industries have realized that a proper functioning CIP system offers a return on investment in cost savings as well as in the extension of product shelf life. Higher cleaning efficiency leads to better hygienic conditions and subsequently to shorter downtimes between product runs.

Community Directives have proved not only to impede any risks arising out of the design and construction of food machinery but also acted as the base for better studying, measuring and in-depth understanding of the cleaning mechanisms. In following this method and at the pursuit of optimizing the CIP performance, predictive growth and inactivation models have been used in order to manipulate production data and determine microorganism growth rates, temperature and cleaning agents' impact. The collection of such information can



(photo: Automation System Hellas)

help discover any process bottlenecks and thus propose actions for fouling confrontation.

Most importantly, a successfully enforced CIP unit relies on the optimal controlling of the parameters of the extended Sinner circle. According to this model, the cleaning effectiveness is influenced differently by the product type, the time, the chemicals, the mechanics, the temperature and the plant design. These six variables interact with different percent gravity in each case, so a CIP fine-tuning in situ is essential to be carried out by experts who will handle each application with different perspective.

Product type

Depending on the type of the product one can stipulate the possible presence of organic and inorganic matter. The chemical cleaning media should cover the need for removal of sugar, fat, protein, mineral as well as thermo resistant and thermophilic microorganisms.

Time

The time that a circuit has to be cleaned depends on the product type, the piping length and its diameter. There are predefined time set points for each case but laboratory evidence should also be taken into account when running the fine tuning process of adjusting the set point values.

Chemicals

In most cases the cleaning process can be effectively enforced with the help of water, alkaline and acid solutions enriched with surface active, calcium binding and oxidizing agents.

Advised chemical concentration for common liquid food industry:

- Alkaline solution (NaOH): 1,5 – 2,2%
- Acid solution (HNO₃): 1 – 1,5%

Higher concentrations of cleaning solutions may lead to improper cleaning and excessive water consumption.

Mechanical Action

Advised velocity:

- Turbulent flow: 1,5 m/s up to 2 m/s. A higher value of velocity is not recommended as it will only lead to short-time equipment wear and increased energy costs.

Temperature

Advised cleaning temperature for common liquid food industry:

- Water $T_{max} = 18 - 45^{\circ}\text{C}$

A higher value of temperature is not recommended as it will only lead to energy



The common mistake that industries make during the chase of achieving higher quality products and longer shelf life, is that they focus on production machinery and network equipment, excluding the CIP system (photo: Automation System Hellas)

loss. Warm water will remove a substantial contamination load and will prepare the circuit to be cleaned effectively by the base solution. Inadequate volume of water or low temperature can result to insufficient rinsing and foam creation during the soda recirculation.

- Alkali $T_{max} = 65 - 80^{\circ}\text{C}$

A higher value of temperature is not recommended as it will only lead to the addition of mineral deposit. This phenomenon can result over time to mechanical wear or flow blockage in sensitive equipment as plate heat exchangers and filling machines.

- Acid $T_{max} = 50 - 60^{\circ}\text{C}$

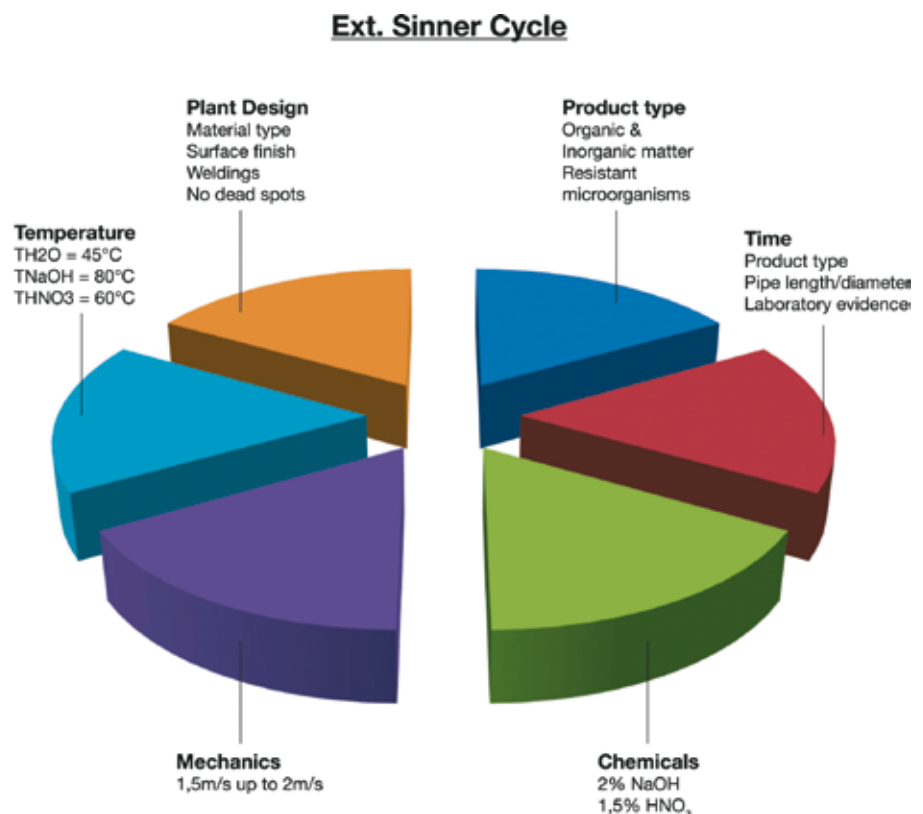
A higher value of temperature is not recommended as it will only lead to the addition of mineral deposit. Again, this can be the reason of insufficient flow velocity and poor cleaning results.

Plant design

A properly designed production plant respecting the hygienic international standards is of the same importance as all the above parameters. Design features as the material type (stainless steel 304, 316L), the surface finish, the type of joints, weldings and couplings can form a sound design that will avoid fouling and leave no dead ends or non-drainable equipment.

Conclusions

Cleaning of food industry process lines and equipment is an issue of balanced strategy. Different issues have to be considered and various parameters have to be controlled. It's a matter of achieving the best cleaning results whilst controlling all the influencing parameters. CIP should not be dealt with as an isolated unit but as an element of the whole process line. In a few words, follow these steps: Understand the process, identify your needs, design and validate your CIP tool.



Trendy products out of a bottle

IDM interview with Thomas Redeker, KHS Dairy Team



KHS has adopted a comprehensive approach so that they can offer their customers not only effective, resource-saving and operator-friendly machines but also extra service and training opportunities (photo: KHS)

Ever more product innovations in the area of milk drinks and drinking yogurts are introduced to the market in plastic bottles. IDM asked Thomas Redeker, Sales Director Dairy Europe KHS, about the background of this development and about sustainability of plastic as packaging material.

IDM: Do you see a trend towards milk products being increasingly packaged in plastic bottles? Is this trend also evident in Germany?

Redeker: At the moment we're seeing a worldwide trend towards milk products in plastic bottles. In Europe the Euromonitor International market research company forecasts a growth of 20% from 2014 to 2019 – in yogurt drinks in Germany, for example.

Milk products, which are launched to market as being healthy and trendy, are already increasingly being packaged in the safe and practical plastic bottle.

IDM: How high is the sustainability factor when we think of PET or other oil-based packaging materials? The manufacturers of cardboard packaging have already long documented a certain superiority regarding their packaging systems ...

Redeker: In the meantime the superiority of cardboard packaging you speak of is treated with greater distinction. Cardboard packaging now only consists of 50% to a maximum of 70% of cardboard; the rest of the packaging is made of plastic and aluminum. The other packaging components in the composite cardboard packaging are also not recycled but burned. Deutsche Umwelthilfe, a German environmental relief association, estimates that cardboard recycling quotas only amount to 36%.

The PET bottle, on the other hand, is 100% recyclable. PET bottles made completely of recycled PET, such as Coca-Cola Life, have long been on the market. For many years non-returnable bottles have contained recycled PET and bio-based plastics.

The number of PET bottles made of raw materials of plant origin will rise from the current 30% to 100%.

Another promising natural raw material is being used by the experts from Hohenheim University in a research project. PEF or polyethylene furanoate is produced completely from plant-based raw materials. It can be re-used and is heralded as being the packaging material of the future, especially in the food and beverage sector. PEF is distinguished by its increased impermeability to carbon dioxide and oxygen and thus ensures that the packaged products keep longer. Another advantage of the new material is its higher mechanical load-bearing capacity.

IDM: Why should a dairy install machines from KHS in particular?

Redeker: As a systems supplier we'll continue to use our expertise to develop holistic systems for the milk and dairy industry. We adopt a comprehensive approach so that we can offer our customers not only effective, resource-saving and operator-friendly machines but also extra service and training opportunities. One example of this is our Bottles & Shapes program which supports our customers in the individual development of their bottles regarding the aspects of economy, market acceptance and product quality.

We of course also take into account the many demands of the trade our customers have to consider. We therefore not only supply rotary aseptic filling lines with high filling capacities but also extremely flexible linear aseptic and ESL filling lines. These lines provide high line availability with very short format changeovers under aseptic conditions. Line expansions with flexible multipack systems also enable our customers to cater for the strong trend towards smaller batch sizes and a greater variety of different secondary packaging styles.



Thomas Redeker, Sales Director Dairy Europe KHS: "The PET bottle is 100% recyclable. PET bottles made completely of recycled PET, such as Coca-Cola Life, have long been on the market." (photo: KHS)

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New possibilities for improving sustainability of cheese production

Modification of process management



Author: Peter de Jong – Professor of Dairy Process Technology, Van Hall Larenstein Leeuwarden/Velp, Principal Scientist NIZO food research Ede



Dairy products are known for their relatively low impact on the environment per unit of nutritional value. The carbon footprint of cheese from the Netherlands has been reduced in recent years by minimizing energy and water consumption. However, there are other options for further improving the sustainability of cheese production. The dairy research team at Van Hall Larenstein University of Applied Sciences is revealing new possibilities.

The Netherlands as a leading country in sustainable cheese production

The Netherlands wants to be a leading country in the global dairy sector. As part of this aspiration, it requires the knowledge and experience required for the sustainable production of cheese. One example of this is the availability of technology to completely eliminate process water wastage – in which membrane filtration is applied to reprocess the water into high-quality water for cleaning equipment. Smart process control ensures that the protein is added to the cheese as effectively as possible (1). In addition, other energy savings have been implemented in various parts of the cheese process. Table 1 provides an overview of existing procedures for improving sustainability, which have been used, for example, by NIZO food research.

New possibilities

All of the measures stated above relate to improving process management. Recent research has shown that the ingredients used can also substantially improve the sustainability profile. After all, a large part (>80%) of the carbon footprint comes from milk from

Table 1. Overview of possible procedures to reduce the carbon footprint of cheese

| Measure | Sustainable effect |
|---|---|
| Recycling of process water through membrane filtration | Reduced water wastage per kg of cheese |
| Data analysis and optimization of cheese process | Efficient transition from protein in milk to cheese (more cheese per ton of milk) |
| Optimization of cleaning | Faster cleaning with fewer chemicals and reduced energy consumption |
| Optimum design of cheese milk pasteurizer | Longer running time before cleaning is required, leading to reduced energy consumption and reduced product loss |
| Quantitative analysis of microbial risks using computer simulations | Increased hygiene levels in cheese process, reducing product wastage |

the primary chain (see Figure 1). Applying measures to ensure a higher cheese quality is achieved with a reduced loss of product, i.e. loss of milk, can have a huge impact. Rennet, especially, affects the structure and the moisture level distribution of the cheese. Additionally, the rennet itself has a carbon footprint and the quantity of rennet added to the milk also affects the overall carbon footprint of the cheese.

Case study: a new type of rennet

At Van Hall Larenstein, a new type of rennet has been studied (DSM, Maxiren® XDS) and evaluated regarding its contribution to sustainability. This rennet consists of the enzyme chymosin and is not obtained from a calf's stomach, but through fermentation of the yeast *Kluyveromyces lactis*. The rennet contains no benzoate and has a kosher, halal and vegetarian status.

- Lower dosage – The enzymes in the new rennet are more effective than rennet from a calf's stomach (or identical) as they only cut the casein of the milk where required to build up a good gel structure. As a result of this, a lower dosage is needed with an overall impact of 40-50 grams CO₂ equivalent per kg of cheese. Although this is only 0.5% of the overall footprint of cheese, it still represents 6% of the carbon footprint of cheese production itself.

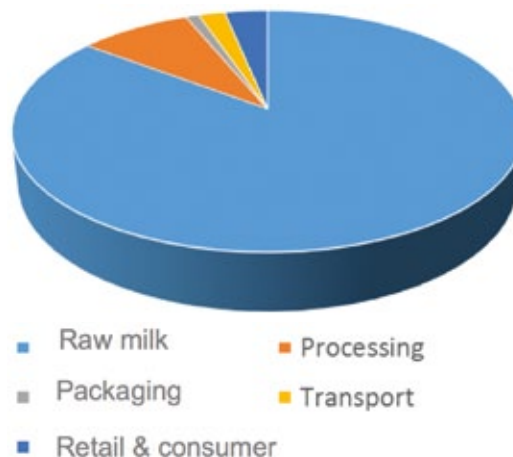


Figure 1. Carbon footprint of cheese broken down into various parts of the chain. Overall footprint is estimated at 8.8 kg CO₂ equivalents per kg of cheese (2)

- Reduced variation in moisture level – The new rennet is less sensitive to variations in calcium content and pH. It appears that this also reduces the variation of the moisture level in cheese. After use in



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FOOTONE

80 batches of Gouda cheese, the standard deviation had dropped from 0.6 to 0.5% moisture. If the requirement is for more than 90% of cheeses to meet the maximum moisture level of 42.5%, this reduces the footprint of the cheese by 0.2% (twice the difference in standard deviation). In relation to cheese production, this constitutes a footprint reduction of more than 2%.

- Reduced cutting losses – The texture of cheese becomes smoother with the new rennet. Furthermore, the moisture distribution in the cheese is more consistent, reducing rind losses for pre-cut cheese. Various industrial cheese production processes show that this reduces cutting losses by an average of 15%. A conservative estimate is that these losses are now 2%. If these are lowered by 15%, this will reduce the cheese production footprint by 3.5%.

Overall, the use of a new rennet will yield a substantial footprint reduction of almost 12%. Dairy companies have set themselves the target to reduce the footprint of dairy processes by 20% in 2020. The use of this new rennet already achieves a large part of the target for cheese production.

Modification of process management

The use of a new rennet requires a minor modification of the process. The new dosage has to be adjusted to suit the rest of the cheese process and parameters will have to be modified. The whey composition will also change, including less curd dust and reduced amounts of protein decomposition products.

Collaboration in the chain is essential

The results of the study show how important it is to collaborate in the chain to achieve sustainability targets. A cheese manufacturer focuses on the production plant: How can I save even more energy? How can I fine-tune my processes even more? In this way, a relatively large amount of effort is put in to achieve the

Cheese process

Cheese is a concentration of milk (about 10x) and consists of a milk protein (casein) matrix containing fat, salt, minerals and water. Casein are spherical micelles with a diameter of 20 to 200 nanometers (nm) and are made up of different types of casein. Research has shown that kappa-casein can be considered as the protective colloid of the casein micelle. After adding chymosin (rennet) to the milk, the casein micelles quickly lose their stability and form a gel under the influence of calcium ions. The coagulation of the milk is initiated with the specific enzymatic effect on the kappa-casein at the surface of the micelle. The gel is then cut and divided into whey and curd-particles. Specific bacteria (starter cultures) are added to the milk to ferment the lactose. The release of whey is promoted and the whey is separated from the curd. The curd particles are transferred to cheese molds and, after pressing and salting, the cheese is matured until the desired taste is obtained.

footprint reduction percentage. The composition of a rennet falls outside the scope of a cheese production plant, even though substantial sustainability gains appear to be possible there.

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Manufacturer of Mozzarella cheese making equipment acquired Tetra Pak

Tetra Pak has acquired Johnson Industries International, a company specialising in the design, development and manufacture of equipment and lines to produce mozzarella cheese. The company also manufactures a range of cheese cutting, shredding and brining equipment. These additions broaden Tetra Pak's wide-ranging cheese technology portfolio and strengthen its position as a leading global provider of cheese manufacturing solutions.

Based in Wisconsin, U.S., Johnson Industries International, is one of North America's principal suppliers to the high-quality, high-volume segment of mozzarella cheese manufacturing.

Johnson Industries International will remain in its current location and will continue to focus on its core business.

tetrapak.com



(photo: Tetra Pak)

Almarai expands capacities IMA GASTI

Leading Saudi Arabian food corporation “Almarai” has commissioned two additional cup filling and sealing machines manufactured by IMA GASTI. The newly developed “CONTITHERM 162” machines are among the most highly productive of their kind in the world. This means that the Saudi Arabian company now has a total of 19 IMA GASTI machines in operation.

With an output of 40,320 cups per hour, the CONTITHERM 162 ranks among the most productive machines in the world when it comes to filling liquid to pasty products. The machines fill pre-formed cups with yoghurt products for Almarai. The continuous motion principle prevents the product from sloshing during the transport to the sealing station with pre-cut foils in spite of the extremely rapid cup transport.



Recently, Almarai has commissioned two additional cup filling and sealing machines manufactured by IMA GASTI (photo: IMA)

The CONTITHERM 162 also features a high level of automation and exceptionally accurate dosing, as well as being straightforward and efficient to operate and clean. imadairyfood.com

New protective Delvo Guard cultures reduce food waste DSM

DSM has expanded its range of natural food protection solutions with the launch of a new range of highly effective protective cultures that increase the shelf life of dairy products such as yogurt, sour cream and fresh cheese. Effectively combating yeast and mold growth, these new Delvo Guard cultures are specifically targeted at producers who are looking for clean label solutions to reduce dairy losses and to increase the shelf life

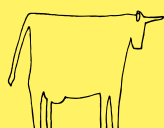
of their products. Using DelvoGuard protective cultures helps dairy producers meet these consumer demands as no additional labeling is needed. The patent-pending cultures are based on *L. rhamnosus* and *L. sakei* strains. They provide synergistic effects against yeast and mold in two ways: by the production of various inhibitory compounds and through competitive exclusion. dsm.com

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Huge opportunities in China's surging cheese market

New analysis underlines the dynamics of the market



Author: Patrick Schreiber, Editor at CCM, patrick.schreiber@kcomber.com; CCM is the leading market intelligence provider for China's agriculture, chemicals, food & ingredients, and life science markets, cnchemicals.com

Top 10 exporting countries of cheese and curd in China, 2016

| Rank | Origin | Quantity (kg) | Value (USD) |
|------|-------------------|---------------|-------------|
| 1 | New Zealand | 51,116,396 | 216,392,254 |
| 2 | Australia | 19,967,897 | 76,928,686 |
| 3 | The United States | 8,956,282 | 40,975,731 |
| 4 | France | 3,492,904 | 21,031,025 |
| 5 | Italy | 2,585,230 | 15,639,892 |
| 6 | Denmark | 3,102,799 | 14,711,057 |
| 7 | Germany | 2,459,528 | 8,811,821 |
| 8 | Uruguay | 1,600,000 | 5,584,500 |
| 9 | The Netherlands | 611,056 | 3,415,772 |
| 10 | Argentina | 763,082 | 2,590,857 |

Source: China Customs

Top 5 importing countries of cheese and curd from China in 2016

| Rank | Destination | Quantity (kg) | Value (USD) |
|------|-------------|---------------|-------------|
| 1 | Hong Kong | 124,585 | 771,847 |
| 2 | Italy | 5,220 | 60,493 |
| 3 | Mongolia | 2,556 | 13,953 |
| 4 | Malaysia | 65 | 10,815 |
| 5 | North Korea | 500 | 3,150 |

Source: China Customs

China's cheese manufacturers are advancing fast to get their share in the high-speed spreading cheese market in China. However, the main sales channels are still in the food service sector, leaving a high potential for manufacturers to penetrate into China's retail market.

According to CCM's research (cnchemicals.com/), the cheese industry in China witnessed increasing demand for cheese during 2015-2016. The main sales channels hereby are food services like hotels, caterings, and the baking business. To be more precise, the entrance rate of cheese in China even reached 79%.

Even the retail sector only accounts for 24% of sales in the whole cheese market in China, the future looks very encouraging. According to the Cheese China 2016 Report by Mintel, retail sales are expected to rise at a CAGR of almost 13% until the year 2021. Hence, the amount of distributed cheese would end up at 38,830 tonnes. Moreover, looking at countries around China, like Japan and Vietnam, the potential for cheese sales in retail stores is shifting more obvious. Those two Asian countries already have a retail portion of cheese at about 41% and 73% respectively.

After a strong infiltration of cheese into China's 1st and 2nd tier cities in

previous years, the most attractive and fast growing opportunities for manufacturers and traders can be found nowadays in the 3rd and 4th tier cities in China. Especially bakeries and western style restaurants are witnessing a surging demand for cheese from their customers.

China's dairy manufacturers have discovered the expanding interest and started to getting into the cheese business as well. However, according to CCM, about 90% of cheese in China is still imported, which is an amount of about 90,000 tonnes yearly.

Imports and Exports

The main exporting country for China's cheese demand remains New Zealand with a quantity of cheese export to China by more than 51 million kg and a value of over USD216 million. The second rank is Australia with almost 20 million kg and on the third rank can be found the USA with almost 9 million kg.

The top exporting countries of cheese and curd in China 2016 from China Customs show, that China's cheese import is highly concentrated in the Oceania region, while European countries, which are traditionally famous for cheese products, are lacking behind.

Nevertheless, China is also exporting cheese to several countries, even if the main destination is Hong Kong. Surprisingly, Italy is the second ranked destination of cheese from China, according to the data from China Customs.

China's manufacturers increase efforts

For Chinese manufacturers, the jump into the cheese business could be an effective way out of the sluggish market trend of many dairy products in China. While the purchase price of milk is constantly going down in the last years, the cheese business is a promising upmarket diversification.

Currently, only a few Chinese manufacturers have got a share in the cheese business by delivering to brands like McDonald's, Milkana, and Savencia. The supplying Chinese companies, according to CCM, are Bright Dairy & Food and Beijing Sanyuan Food. Other companies in China are putting a

lot of effort into the development of cheese products to get their share in this rising market. One example is Yili, which is developing a cheese product for the Chinese taste currently, with an unknown launch date yet. China Mengniu Dairy is working on launching its own cheese products as well, which

demonstrates a diversification from its current product portfolio, consisting only of cheese sticks for infants in this market. Also, Ground Food wants to open a cheese processing factory in spring of 2018, which will be capable of producing about 40,000 tonnes of cheese products yearly.



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connecting nutrition and health

This year's Vitafoods Europe, the global nutraceutical event, is expected to be the biggest ever. The first event took place in 1997 – there were 100 exhibitors, and just over 1,000 attendees. This year there are expected to be over 1,000 exhibitors and over 18,500 visitors.

Year on year, businesses use Vitafoods Europe as a platform for launches, and hundreds of new ingredients will be exhibited and demonstrated at this year's event, 90 of them in the New Ingredients Zone alone.

There will also be plenty of innovation on show in the New Products Zone, and the Springboard Pavilion will provide a space to engage with entrepreneurs at the cutting edge of the nutrition sector. For visitors who like their information bite-sized, the Vitafoods Launchpad will offer concise, highly focused exhibitor presentations about the latest products and ingredients.

New for 2017, the Vitafoods Innovation Centre, in association with analyze & realize, will offer free consultations on product development, scientific marketing, licensing opportunities, regulation and market access. Visitors who take advantage of the Innovation Tours in association with NutriMarketing will be able to take a guided tour around carefully selected exhibitors. And for those who prefer to find their own way round, four self-guided Discovery Trails will show the way to Sports Nutrition suppliers; New Exhibitors; Exhibitors looking for Distributors; and Advice and Expertise.

In the Market & Trend Overview, experts from Innova Market Insights will explain the latest innovations and emerging industry

VitafoodsTM Europe



9 – 11 May 2017, Palexpo, Geneva

trends. Visitors to Vitafoods Centre Stage will hear expert speakers address upper limits for vitamins and minerals in Europe.

Meanwhile, the Life Stages Theatre will review the bespoke nutrient requirements needed throughout the stages of a person's life. Elsewhere, the Exhibitor Presentation Theatre will showcase 35 presentations from a wide range of global exhibitors. Experts from around the world will also be sharing results from clinical trials and research projects through Poster Presentations.

For those enjoy the competitive side of things, the Vitafoods Venture Den will be an informal, fast-paced pitching competition for entrepreneurial businesses looking to raise finance and forge strategic partnerships.

The Vitafoods Europe Education Programme

The Vitafoods Europe Education Programme will run alongside the exhibition, it will deliver targeted, high-value content focused on delegates' individual business roles.

Based on feedback from last year, the Programme will be separated into three distinct platforms, there will be seven R&D Forums. A series of Business Workshops will present best practice for business growth, market access and streamlined supply chains. Each of the sessions will focus on one of four key areas: ingredient registration and regulation; market insights and trends; marketing strategies; and botanicals. The full-day Probiotics Summit, produced with the assistance of the International Probiotics Association, will explore the current market and regulatory environment, as well as the latest developments in R&D. For more information about visiting Vitafoods Europe 2017 visit www.vitafoods.eu.com

IDM has compiled a first glimpse on Vitafoods Europe 2017 on the following pages.

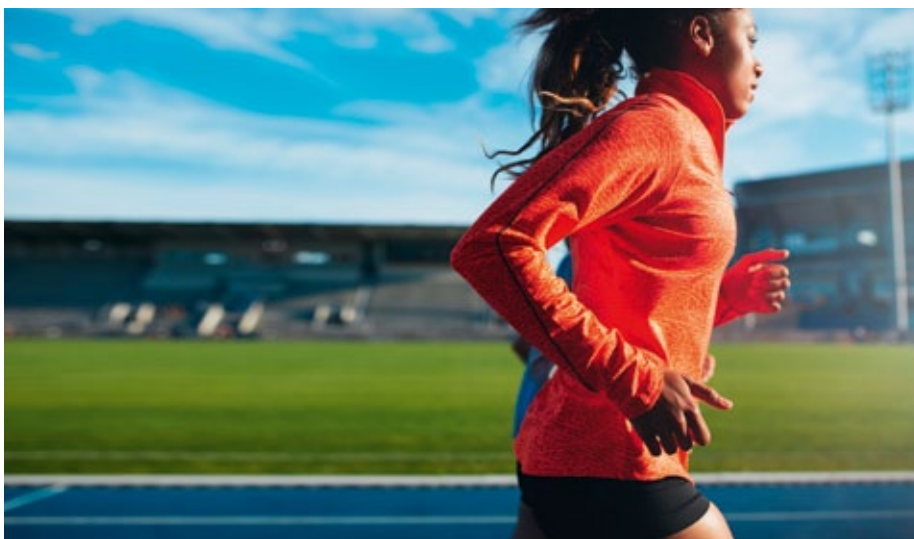
Algatechnologies: Whole-ALGAE AstaPure natural astaxanthin

Algatechnologies will highlight its AstaPure 3% astaxanthin powder. This unique, whole-algae form of astaxanthin was developed in response to a growing demand for natural ingredients as occurred in nature.

Astaxanthin powder, derived from *Haemato-coccus pluvialis* microalgae, is produced using a



Algatechnologies' plant for astaxanthin production from microalgae (photo: Algatechnologies)



FrieslandCampina DMV's "overnight recovery concept" allow athletes to extend their recovery period during sleep (photo: FrieslandCampina DMV)

sustainable and patented closed-cultivation system energized by natural sunlight. In addition, Algatechnologies offers solvent-free Astapure beadlets and oleoresin. AstaPure products enable a clean label and can be used in functional foods and beverages. www.algatech.com

DuPont Nutrition & Health

DuPont will be Probiotics Summit Education Programme Sponsor and the Official Digestive Health Sponsor for Vitafoods Europe 2017. Through its Nutrition & Health business, DuPont addresses the world's challenges in food by offering a wide range of sustainable, bio-based ingredients and solutions to provide safer, healthier and more nutritious food.

DuPont's probiotic cultures are scientifically proven to help keep the digestive system running smoothly and to support the body's immune system. Whether it's improving the texture of yogurt or solving a fermentation challenge, DuPont has the application expertise and dairy experience to satisfy even the most nutritious-conscious consumers, while keeping manufacturing costs down. www.danisco.com

FrieslandCampina: Performance nutrition

FrieslandCampina DMV is a leader in nutritional and functional dairy protein solutions for the Sports Nutrition and Food industry. Dedicated to providing solutions to the Performance Nutrition Industry, the company is available for as Sponsor of the Sports Nutrition Zone for tastings and

sharing new concepts. For Sports and Weight Management the global trend is to increase protein levels, our new applications raise protein levels while maintaining an excellent taste.

In the Exhibitor theatre on May 10th at 15.45h Renate Zwijsen (Senior Development Specialist at FrieslandCampina R&D centre) will present on: "How to boost muscle recovery during the night? Rediscover casein protein."

For an athlete a good night sleep is crucial. The "overnight recovery concept" allow athletes to extend their recovery period during sleep. At that time you aren't feeding your body with protein but it still has the opportunity to recover. That's where overnight recovery can help; for up to seven hours after consumption, due to the sustained release of amino acids. The elite athletes FrieslandCampina works with increasingly include it in their diets because of the benefits on their performance, and this will drive wider adoption with mainstream consumers as 'the next new thing'. dmv.nl

Kaneka: Competence through R&D

Kaneka Pharma Europe will showcase Kaneka Ubiquinol, the most active form of coenzyme Q10. Used as a nutritional supplement, the ingredient helps to prevent several diseases associated with ageing. Thanks to its confirmed benefits on muscle performance and recovery, a number of professional athletes have already adopted Kaneka Ubiquinol as part of their training schedule. The company will also highlight the visceral fat-reducing and Novel Food-approved licorice root extract Glavonoid,



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Glavonoid derived from liquorice is able to increase the body's own fat burning ability, while at the same time decreasing fat synthesis by down-regulating genes that are involved in fatty acid development (photo: Kaneka Pharma Europe)

which has great promise for sports and fitness applications. kaneka-ubiquinol.com

Rousselot/Peptan: Winning solutions

At Vitafoods, Peptan collagen peptides and gelatin solutions for optimal dosage forms will be showcased on the Rousselot stand. Peptan-enriched prototypes promoting multiple health benefits will be available to inspire manufacturers looking for proven ingredients to succeed in the mobility, healthy aging and skin beauty markets.

Peptan and Rousselot experts will also present seminars on the latest research and market trends. These will highlight why bioactive collagen proteins are increasingly being recognized as the key mobility solution for healthy aging on May 11th, and how to achieve the best delivery forms for the nutrition market with Rousselot world class gelatins on May 10th.

Refreshing mobility-boosting drinks with collagen peptides and beauty frozen yoghurt will

be on stand to showcase Peptan's versatility and unique functional and organoleptic properties. The world-leading collagen peptide brand, Peptan, is proven to support bone and joint health, overall mobility and performance, as well as skin beauty. Manufacturers looking for bioactive ingredients targeting a holistic approach to healthy living will find plenty of opportunities with Peptan, a bioavailable pure protein. Mai Nygaard, Global Director Peptan, will provide more details on the role of collagen peptides in healthy aging products in the seminar titled 'Responding to the mobility demand of aging consumers with bioactive collagen protein' on May 11th, 11:55, at the Life Stages Theatre. Scientific studies will be explained together with the latest global trends in the healthy aging market. rousselot.com

Taiyo extends its Sunfiber portfolio

Taiyo will present new additions to its Sunfiber portfolio, an all-natural, soluble dietary fiber that can now also be used as a sweetener. The Sweet-Sunfiber compound contains an Isomalto-oligosaccharide whereas the Sunfiber-Matcha Honey variant promotes natural sweetness with a green tea tang. Both combine the health-boosting properties and technological benefits of Taiyo's dietary fiber ingredient with a mildly sweet taste profile.

Sweet-Sunfiber provides end products with a sugar-like sweetness – combined with a dietary fiber boost. The Isomalto-oligosaccharide convinces with an excellent nutritional profile: fewer calories, a low glycemic index, and tooth-friendliness. Sunfiber as a soluble fiber has various prebiotic properties, promoting the growth of short-chain fatty acids in the colon, which helps



(photo: Dionisvera)

to prevent nutrition-related diseases. As the fermentation rate of Taiyo's ingredient is very slow, it doesn't produce painful gas, cramping or discomfort. This is particularly important for patients with irritable bowel syndrome, who often struggle to tolerate dietary fibers. However, Sunfiber products are proven to be well tolerated.

The Sunfiber range also benefits from optimized technological benefits. The ingredients are highly water soluble, stable at different pH levels and temperatures, and can therefore be used for a variety of applications as dairy and ice-creams.

"More and more consumers are looking for products with health benefits. Ultimately, however, the factor that defines the success of a product is taste. Particularly for reduced sugar products, getting the sweetness profile right can be challenging. It is all about achieving the 'gold standard' sugar taste with an improved nutritional profile," says Dr Stefan Siebrecht, Managing Director of Taiyo GmbH. "Our new compound, comprising an Isomalto-oligosaccharide, matches both demands: Sweet-Sunfiber guarantees a balanced sweetness with fewer calories while providing a high concentration of well-tolerated dietary fibers."

The biocertified Sunfiber-Matcha Honey offers an interesting mixture of sweetness and refreshingly bitter green tea flavor. It provides a simple way to combine dietary fiber enrichment with an extraordinary taste and health-boosting properties. In general, Matcha is known for its antioxidant effect, and honey for its antibacterial properties.

All Sunfiber variants are clinically proven to lower the glycemic index, contributing to stabilized blood glucose levels. Furthermore, the prebiotic fiber promotes the health and function of the intestinal tract for general wellbeing. Sunfiber also qualifies as an organic material, is non-GMO and a 100% gluten-free product. It is Kosher and Halal certified and perfectly suitable for vegetarians and vegans. taiyogmbh.com



Manufacturers looking for bioactive ingredients targeting a holistic approach to healthy living will find plenty of opportunities with Peptan at the Rousselot booth (photo: Rousselot)

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Dry Mix quality from Leppersdorf

IDM paid a visit to "Whey 5" at Sachsenmilch/
Unternehmensgruppe Theo Müller

With an investment of €200m, Sachsenmilch, part of Unternehmensgruppe Theo Müller, has brought whey processing to a world-class standard. The company has been processing whey only for the past 8 years and has, in that time, put more and more focus on utilising permeate streams for manufacturing high-value whey derivatives. Meanwhile,

all whey components can be utilised with only the mash from bioethanol fermentation leaving the Leppersdorf (East Germany) plant as fertiliser. IDM had the highly exclusive opportunity to visit the whey processing facilities of Unternehmensgruppe Theo Müller in Leppersdorf.

"As we are making pre-products for baby-food, we have designed the latest expansion

of our whey processing, named 'Whey 5', accordingly for highest possible hygiene and product quality," explains Jeroen Derks, Managing Director Sachsenmilch. "We operate Whey 5 in principle just like a pharmaceutical plant, the working processes have not much in common with those in conventional milk or whey processing."

Top level quality

Whey 5 stands for protein filtration and lactose production according to the Dry Mix standard. First ideas for an upgrade of whey processing in Leppersdorf for manufacture of WPC80, WPI90, MCC80 and 85 or lactose date back to 2011/12 when project Whey 4 was just going into operation. A year later, building works started, the official opening of Whey 5 followed in April 2016. Mathias Hauer, Commercial Director Milk & Whey Ingredients Sachsenmilch, told IDM. "We care for our customers, who basically are toddlers and elderly people, and have decided to give quality a top priority. That means that we thoroughly validate all our processing and management around Whey 5." Dr. Lars Gorzki, Head of Production of Whey 5, added: "Just look at the cleaning procedures. We validate them in a worst case scenario three times before we are positive that these procedures can get into every-day operation." In terms of quality and hygiene, Sachsenmilch claim they are ranking amongst the Top 2 in Europe. In terms of quantity, Mr. Derks said, Sachsenmilch rank in the Top 3 of the European whey processors.



(photo: UTM)



Sachsenmilch runs one of the largest membrane filtration plants for whey worldwide (photo: UTM)



Whey 5 has two fluid bed dryers (photo: UTM)



The packaging of dry mix lactose marks the strictest hygiene zone within the whole Wheys 5 operation (photo: UTM)

Whey 1 to 5

Whey 1 marked the start of whey processing at Sachsenmilch back in 2008 with the installation of a spray dryer. Shortly after, Whey 2 followed which meant the installation of a fluid bed dryer. Whey 3 was a project that led to milk calcium isolation and bioethanol fermentation from permeate and molasses from lactose production. Whey 4 meant high-protein products from whey, in which Sachsenmilch has invested €75m. Whey 5, finally, is lactose production in

Dry Mix quality under the brand name "Infantose". A starting point for the Whey 5 plans was that the company should make something more than mere lactose, as the latter is being manufactured by everyone, said Mr. Derks.

The building for Whey 5 measures 54 x 42 m and is 35 m high (adding to another 8 m underground). The various parts of equipment are placed over 6 floors. Pre-processed product streams come from the neighbouring Whey 4 installation. Here, Sachsenmilch oper-

ates a massive membrane filtration based on RO and MF. Whey 5 is equipped with two fluid bed dryers supplied by GEA which are situated in two separate rooms, 10 lactose silo tanks and peripheral equipment as well as a lactose mill (Hosokawa), three washing lines and two evaporators for redundancy and, naturally, the lines for making high-protein products. The operation runs in a 24/7/365 pattern, three operators and one supervisor work in each shift, one operator oversees packaging

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(25 kg strippable bags filled on GEA Avapac, Big Bags). Another two workers keep the hygienic status of the operation up and running. In total, 160 employees are working in Whey 5, incl. a newly installed residues analysis lab. All in all, Whey 5 has created 60 new jobs.

Whey 5 is also important to the whole Sachsenmilch plant (1.8 bn kg annual milk and whey throughput, 2,400 workers) in terms of energy utilisation as it consumes lots of heat energy produced by the gas turbine that generates electricity for the whole Leppersdorf operation.

Hygiene comes first

Sachsenmilch has developed the hygiene concept for Whey 5 together with customers in the babyfood business. "We had the opportunity to visit several plants of our customers to see what their requirements for hygiene management are. Of course, we also had our own ideas and some elements out of that were gladly taken over by several customers," explained Dr. Gorzki.

The result is the establishing of two, better said three hygiene zones in the plant. The lower hygiene zone, marked green throughout the facility, allows for use of water while one can't get access to water in the High Care zone, marked in red. Here, only dry cleaning takes place based on fixed installed vacuum cleaners. Access to the green zone requires a complete change of clothes. Access to the red zone is strictly monitored. One needs to have the right ID card and one must pass through the switchboard gallery which is always manned so that a visual control can be made to avoid any incidental access of persons who should not enter the High Care area. Upon entering the red zone, one needs to



Whey 5 has ten lactose silos for product storage (photo: UTM)



This poster reminds the operators in Whey 5 of the high care they have to take in their daily work (photo: Truhlar)

undergo another complete change of clothing. The access of equipment is possible at only one gate, and in the High Care area, only sterilised tools may be used.

Given the time consuming procedures for access, workers have to think of what work at what time and where they have to carry out, a normal situation in a pharmaceutical environment. Not surprising, the number of staff entitled to enter Whey 5 is very limited. These workers receive also permanent instruction as a High Care operation highly depends on the attitude of the workers.

The most secluded part of Whey 5 is the bagging operation. Incl. the Dr. Gorzki, only 11 people may enter this area. Even auditors sent from customers cannot get access.

The Whey 5 building has two separate staircases and elevators. The whole building is under overpressure of sterile air (HEPA class 13) which is also led into the frames of the installed machines. The air is conditioned in a way that there can't be condensation in any part of the red zone which is kept at a constant 23 °C.

Safety is provided further by a general Hygienic Design of the interior. Control cabinets are mounted at 5 cm distance from the wall, there are no even upper surfaces and the cable ducts are all vertical – to prevent the formation of deposits. And there are the floors which connect to the walls in rounded edges.

The whey products made in Leppersdorf are distributed worldwide, 50% of sales are made in third countries, and the rest of the business is generated in the EU. Amongst the customers, one finds the names of all the big guys in the babyfood and nutraceuticals businesses.

Sachsenmilch would not belong to Unternehmensgruppe Theo Müller if it wouldn't plan forward even now when Whey 5 is in middle of fine-tuning. Jeroen Derks refuses to talk about details but

hints at separating whey protein ever further to deliver highly added-value for the company. IDM will report about the progress of whey processing in Leppersdorf in due time.



Mathias Hauer, Commercial Director Milk & Whey Ingredients: We thoroughly validate all our processing and management around Whey 5 (photo: IDM)



Jeroen Derks (left), MD Sachsenmilch, and Dr. Lars Gorzki, Head of Production at Whey 5: We operate Whey 5 in principle just like a pharmaceutical plant, the working processes have not much in common with those in conventional milk or whey processing (photo: IDM)

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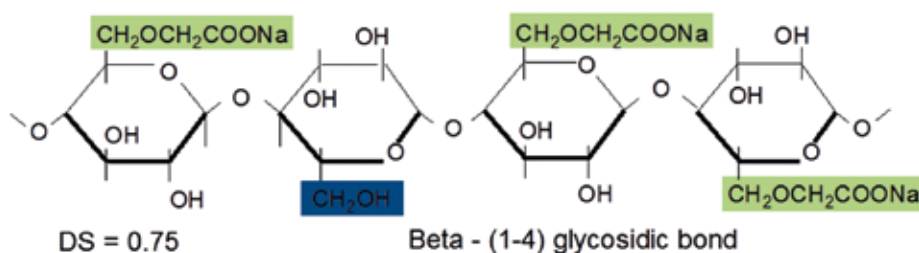
Stabilizers in ice cream

Part II



Author: Line Damsgaard Jørgensen, Application Specialist Ice Cream & Desserts, DuPont Nutrition and Health

LBG, guar gum and carrageenan are some of the most commonly used stabilizers in the ice cream industry, but a range of other stabilizers can give additional or different functionality to ice cream products. In this second part, a deeper look into these stabilizers is taken with description of their origin, use and functionality.



Cellulose gum

Cellulose gum also called sodium carboxymethyl cellulose (CMC) is produced from cellulose obtained from wood or cotton pulp. Cellulose is in-soluble, but by a modification where hydrophilic groups are added in a reaction of alkali cellulose and mono-chloroacetic acid, it is made into cellulose gum that is water soluble. A purifying process gives a high purity allowing crystal clear solutions of cellulose gum.

Cellulose gum is used in ice cream to give a creamy and warm-eating mouthfeel,

improved melting resistance and a long smooth texture.

Xanthan

Xanthan is a fermentation product produced by the bacteria *Xanthomonas campestris*. Xanthan is made of β -1,4 glycosidic glucose units substituted with side-chains containing an acetylated mannose, a glucuronic acid and a terminal mannose. Half of the terminal mannose carries a pyruvic acid residue.

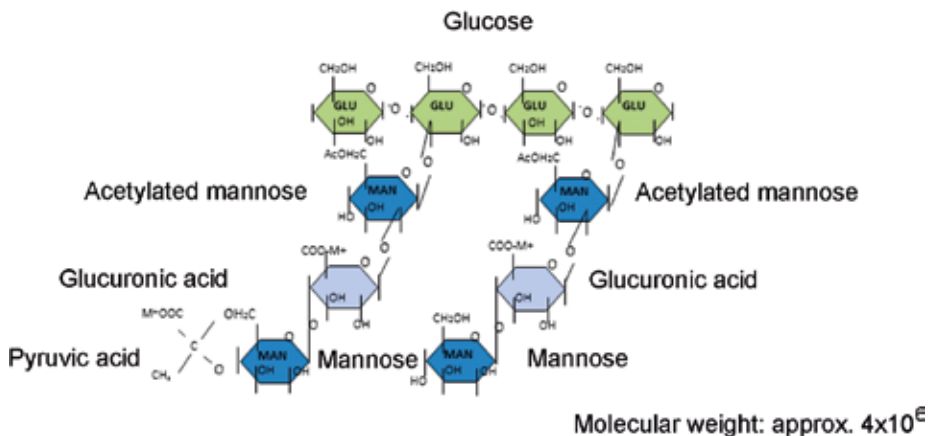
Cellulose gum

- Cold soluble
- Medium flavour release
- Long, smooth texture
- Creamy and warm-eating mouthfeel
- Medium melting resistance
- High mix viscosity

Xanthan

- Cold soluble
- Improves mouthfeel
- Very effective for sorbet and water ice
- pH and heat stable
- High viscosity at low dosage
- Synergy LBG and guar

(photo: shutterstock_178644266)



The ability to give viscosity and improved mouthfeel is why xanthan is used in ice cream; it is cold soluble as well as heat and pH stable and therefore suitable for low pH ice cream like sorbet and water ice.

Alginate

Alginate is a polysaccharide with a high molecular weight, occurring as insoluble salts in the cell walls and intercellular spaces of brown algae. Alginate is extracted from the algae by an extraction process where it is converted into a water soluble salt. The degree of polymerization can be controlled during the extraction and alginate qualities with different functionalities can thereby be made. The alginate molecule consists of a chain of mannuronic and gulucorinic acid units. The chain length, together with the order and ration between M and G units determines the properties of the alginate. Different salts can be attached to the acid groups giving the option to have different alginate salts like: sodium alginate, potassium alginate etc. Each type of alginate salt has its own E-number and solubility and functional properties varies between the alginate salts. Sodium alginate is the most commonly used in the ice cream industry.

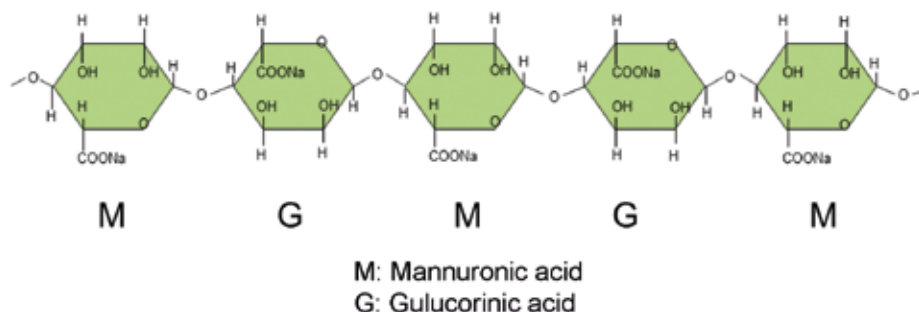
Alginate is due to its high molecular weight very useful to give viscosity and in ice cream it can provide a unique relatively short texture. It also imparts good melting resistance and storage stability due to its water binding ability.

Alginate

- Cold soluble
- Slows meltdown
- Provides unique mouthfeel/texture
- Fresh eating properties

Pectin

The source of pectin is citrus fruits and apples. Pectin is located in the peel and isolated by an extraction process. Pectin is, based on its molecular structure, divided into three types: High ester pectin with a degree of esterification above 50%, low ester conventional pectin (LC pectin) with a degree of esterification below 50% and low ester amidated pectin (LA pectin) where a part of the ester groups are replaced with amide groups.



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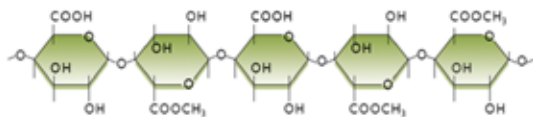
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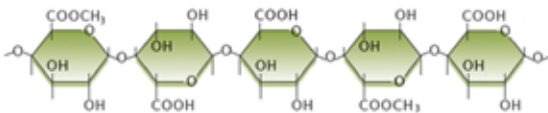
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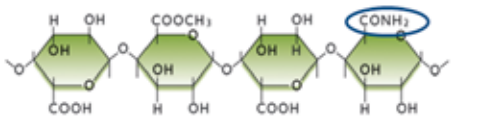
High ester (HE) pectin
 Degree of esterification (DE) = 60%
 Degree of free acids (DFA) = 40%



Low ester conventional (LC) pectin
 Degree of esterification (DE) = 40%
 Degree of free acids (DFA) = 60%



Low ester amidated (LA) pectin
 Degree of esterification (DE) = 25%
 Degree of amidation (DA) = 25%
 Degree of free acids (DFA) = 50%



COOCH₃ = ester group
COOH = acid group
CONH₂ = amid group

Pectin is an effective thickening agent for sorbet, sherbets and water ices due to its acid stability; it is on the other hand usually not used as a stabilizer in ice cream with neutral pH. Besides giving viscosity to water based ices, pectin is also commonly used in yoghurt ice cream because it has a protective effect on the milk proteins. It is only HE pectin that gives the protective functionality of milk proteins because it can restore the repulsive interaction that is lost below pH 5.5 when the repulsive forces from kappa casein collapse.

Based on the above descriptions of the different stabilizers, it is clear that that even though they are all hydrocolloids and water binders with natural origin, then they are also quite different in their functional properties and the parameters they can contribute with in an ice cream. Which stabilizers to choose for a specific ice cream are therefore very dependent on the type of ice cream (ice cream, sorbet, water ice etc.), the wanted properties (creamy, smooth, warm-eating/cold-eating etc.) and the available production process. Different stabilizers used in combination are typically the way to obtain the

optimal functional properties that gives a high quality ice cream. It takes a lot of knowledge, testing and time to find the optimal blend of stabilizers and this is where the ice cream systems from the DuPont Danisco range can be a help. The ice cream systems, also called functional systems, are blends of stabilizers and emulsifiers that are chosen specifically on their functionalities in a ratio that gives the best foundation for production of high quality ice cream. The product range covers functional systems tailor made for all types of ice cream, so whether it is a premium ice cream, a low fat ice cream, a sorbet, a water ice stick or

any other type of ice cream you want to produce, then there is a functional system for it. The advantages of using functional systems instead of single ingredients is that just one powder need to be added instead of maybe four-five different stabilizers/emulsifiers, which reduces the risk of errors. It also means that less time is needed for new product development because the system is designed to give specific properties. Another advantage of functional systems from DuPont Danisco is that the stabilizers/emulsifiers can be integrated, meaning that the stabilizers are mixed into the melted emulsifiers and spray-crystallized.

Unlike physical blends of emulsifiers/stabilisers, integrated emulsifiers/stabilisers consist of free-flowing beads which do not tend to create lumps when added to water. This is because hydration of the stabiliser part in the ice cream mix is easier since the stabiliser component is initially less accessible to the aqueous phase. The stabiliser part will first be released totally into the mix when it is heated to above 60-65°C and the emulsifier starts to melt. In this way, more consistent ice cream production and quality can be achieved.

The advantages of using CREMODAN Emulsifier & Stabiliser Systems in ice cream production:

- Ideal for continuous, automatic production
- Uniform quality
- High bacteriological standard
- Direct addition without dry mixing, for instance with sugar
- Increased effect of some of the components
- Cold dispersible, allowing addition at any convenient stage during processing
- Good dispersion, no lump formation
- Reduced dust problems
- Easy to handle
- Single component system

The emulsifier/stabilizer systems from DuPont Danisco are generally known under the brand name CREMODAN.

Pectin

- Hot soluble
- Suitable for low pH
- Provides mix viscosity
- Mainly used for water ice, sorbet and sherbet



(photo: Meeting Pack)

Meeting Pack Event

More than 300 trade experts from the food-packaging sector will attend Meeting Pack, 30-31 May in Valencia, whose third edition will coincide with "Made from Plastic 2017" show, where more than 3,500 visitors participated last year. The event, organised by Ainia Centro Tecnológico and Aimplas, will focus on "Convenience: driving barrier packaging innovation". Dow Chemical, Danone, M&G or UBE have already confirmed their participation to this event. Topics such as materials and equipment for packaging production, films, sheets and trays; injection, ISBM, ESBM and the latest trends in packaging solutions" will be discussed during this two-day event. meetingpack.com

Kefir formats flourish in fermented dairy drinks

Innova Market Insights

Kefir appears to be bucking the trend that has seen launch activity in drinking yogurts and fermented beverages remain relatively static in recent years. While kefir launch numbers are still limited globally, Innova Market Insights data indicate that they grew more than three-fold between 2011 and 2016. This is despite launches in the overall drinking yogurt/fermented beverages sub-category rising by a much more modest +60%.

The US pioneered the kefir market in the west and brought value-added options in resealable plastic bottles to the mainstream market. It accounted for over one-third of global kefir launches in 2016 and beverages featuring kefir accounted for 40% of US

drinking yogurt/fermented beverages introductions overall, compared with just over 8% globally. Europe accounted for the bulk of the remainder, led by more traditional markets in Eastern Europe, although launches in Western Europe have grown strongly, but from a very small base.

Kefir is strongly promoted on its healthy properties, particularly with rising interest in fermented foods and beverages overall. Nearly half of kefir launches use low fat claims and the sector has also not been slow to exploit rising concerns over sugar intake in the diet. The number of global launches positioned on low sugar/no-added-sugar and sugar free positionings doubled in 2016 to feature in 20% of the total. Organic and



(photo: www.colourbox.com)

lactose free variants are also increasingly common, among kefir launches. innovadatabase.com

Study proves effect of probiotics

DuPont

The DuPont Danisco range of premium probiotics is further strengthened by a new Systematic Review and Meta-Analysis, published in Nutrients February 2017, and shows that daily consumption of *Bifidobacterium animalis* ssp. *lactis* HN019™ enhances cellular immune activity in healthy elderly adults.

"We understand people have varying nutritional needs at different stages of their life. Our probiotics have a clear individual benefit with scientific support for a specific target group. It's not a one-size-fits-all solution," explained Ole Danielsen, global marketing director, Dietary Supplements, DuPont Nutrition & Health "With this in mind, we designed DuPont HOWARU Protect Senior to meet the requirements of a senior target group." dupont.com



DuPont conducted the first Systematic Review and meta-analysis of the probiotic strain *Bifidobacterium animalis* ssp. *lactis* HN019 in relation to immune function in elderly (photo: DuPont)

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Product safety has top priority

X-ray Technology from OCS Checkweighers used at Mila



X-ray scanner series SC 5000 C from OCS Checkweighers (photo: OCS Checkweighers)

The Mila-Bergmilch Südtirol cooperative (€200m sales, 400 workers) is one of the market leaders in the production of high quality dairy products in Italy. In the interests of maximum consumer safety, Mila trusts its fill level control and foreign body detection to X-ray scanners from OCS Checkweighers.

Advanced equipment and transparency

Rudi Mair am Tinkhof, head of production and technology at Mila, is aware of the sensitive nature of product safety. His motto is: "Both customer and end user must be convinced that a company will always do the maximum to ensure the safety of its products." At Mila, this is achieved by complete transparency to the customer and through the deliberate selection of technical equipment and machinery.

X-ray scanners from OCS Checkweighers are a permanent part of the production lines of the dairy operation in Italy's Alto Adige region. They are integrated at every operational step of the

production process where a product leaves the filling and packing machines. For example, fruit yogurt loaded in trays with 20 single chamber cups arrives at an OCS Checkweigher scanner to be screened. Moving at a conveyor belt speed of 35 m/min, the products are reliably examined for proper fill levels and foreign bodies. If one or more of the cups in the tray are over or under-filled, the entire crate is rejected.

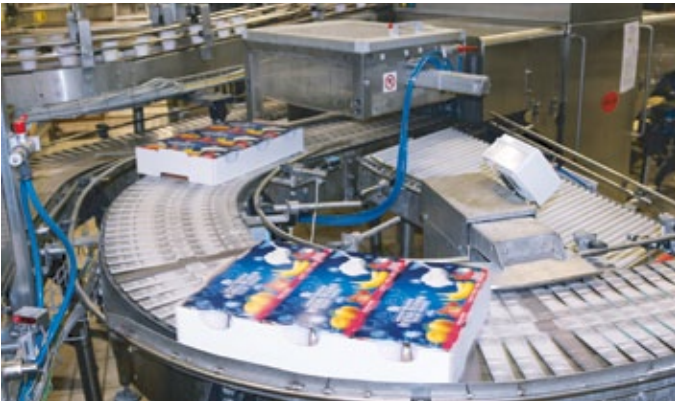
The foreign body detection operates in a similar manner. If an inspected product reveals contamination by stone fruits, glass, aluminum, ceramic, or wire, the entire container tray is removed from the product stream. The identification of the contaminated cup in the tray is made in real time and shown on the scanner display.

Scanning all day long

The x-ray scanners of series SC 5000 C operating at Mila represent the highest standards of modern quality assurance. The



Manager Christian Molling at the controls of the scanner (photo: OCS Checkweighers)



Mila products exit the OCS scanner after screening (photo: OCS Checkweighers)

high performance detector camera with high resolution HD-TDI technology provides sharp x-ray images and is the ideal basis for the OCS in-house developed image processing software. The scanner is equipped with a high quality, metal-ceramic tube with an integrated water cooling system. The software is configurable for additional inspection criteria such as a completeness control, if required.

Production manager Christian Molling is very satisfied with the use of the X-ray scanners from OCS Checkweighers. Both he and Armin Frei from the quality management department praise the reliability and the ease of use of the equipment. The machines were integrated very well and, above all, very quickly in the existing production lines and their quality continues to impress us. "Training, commissioning, and maintenance are all performed with exemplary success. OCS Checkweighers put together a first class service package for us," said Christian Molling.

Rudi Mair am Tinkhof strongly agrees with his colleague. "We have not had any complaints in connection with the use of the OCS Checkweighers systems. That is very satisfying." He explains further: "We are very pleased with the decision made at Mila at that time to select OCS Checkweighers. The calibre of these high-tech specialists is still convincing all of our decision makers to this day."

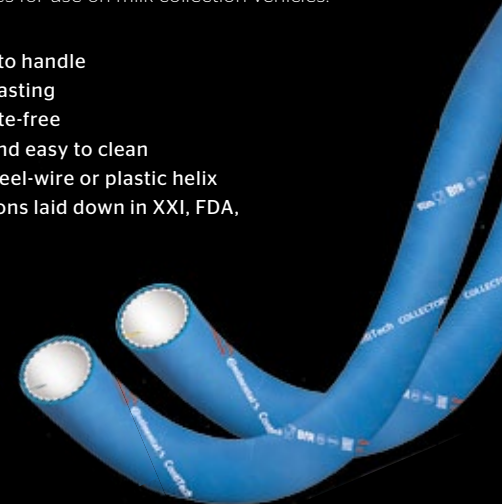


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Cutting edge demand planning

add*ONE Demand Planner at Coppenrath & Wiese

Cakes, pies, pastries and desserts have a long tradition. Yet in today's fast moving society not a lot of people have time for elaborate baking creations – the demand for ready-to-eat confectionery products is therefore constantly growing. Consequently, market-oriented demand planning is becoming increasingly important in the supply chain management of producers of such ready-made foods. Seasonal variations and constantly changing demands of customers must be taken into consideration at all times. The long-standing company Coppenrath & Wiese (coppenrath-wiese.com/) is well aware of that. In order to quickly react to market fluctuations, the company decided to use the software add*ONE from INFORM. Thanks to intelligent algorithms, Coppenrath & Wiese was able to significantly improve its supply chain and now makes use of a multidimensional weekly demand planning method.

The success story of the Conditorei Coppenrath & Wiese KG started at the beginning of the 1970s. The two cousins Aloys Coppenrath and Josef Wiese, born in a traditional confectioners' family, had the revolutionary idea to sell deep-frozen cakes and gateaux throughout Germany via retail trade. Modern shock-freezing procedures, which are a very gentle way of food preservation, turned their vision into reality in a short amount of time. With 35 employees, production started in 1975 in an old dairy plant in Westerkappeln, Germany. Product diversity has been increased constantly and today's product portfolio includes around 70 items, such as cakes, tarts, cream cakes and rolls, strudel, tray bake, confectionery, as

well as bread rolls and baguettes. In 2003, production was relocated from Westerkappeln to Mettingen. Today, more than 2000 people are employed at their logistics center in Osnabrück and in Mettingen, Germany. While the food production is carried out exclusively in Germany, the company runs a number of sales locations in England, the Netherlands, Austria, and the U.S. Popular creations and desserts are shipped to and sold in South, Middle and East Europe, the U.S. and Australia.

New requirements for sales planning due to international distribution

Their slogan "Where can you find quality like this?" suggests the expectations, the company has of itself to combine classic baking tradition with the highest quality standards made in Germany. In order to guarantee those high standards internationally, a robust and flexible sales planning as well as clearly structured logistics processes are necessary. "It is important for us to develop into an agile and procedural company, so that the supply chain department becomes an interface in our company", as Tobias Heinemann, head of supply chain management at Coppenrath & Wiese explains. In the past, sales were planned with strongly limited tools such as Microsoft Excel. The sales department required a far more precise and multidimensional sales planning process. Especially England, one of their main export customers, posed significant challenges to the company with high requirements for agility and reliable, seamless supply, resulting from



INFORM's intelligent algorithms formed the basis for using agile methods at Coppenrath & Wiese. The company is now able to react quickly, flexibly and at all times to new demands of the dynamic food market (photo: INFORM)

its highly complex and fast-paced food market. "In the past, our plans used to be imprecise and not transparent enough. An extrapolation that we executed some time ago showed us that there is a call for action in that area," Heinemann reports. "Thus the greatest challenge for us was to change from monthly to weekly planning. This way, processes such as the sales promotion control can be managed significantly better," as Heinemann explains further. In order to recognize today what markets and consumers want tomorrow, Coppenrath & Wiese decided to use an intelligent software tool for a reliable and market-oriented sales planning.

A detailed selection process and partnership at eye level

From the new software solution, the food producer expected significantly reduced planning efforts, a clear visualization and detailed planning on a weekly basis. Based on a previously prepared requirements catalogue, and after an intensive research phase, two providers were invited to Osnabrück to present their solutions. Due to its expertise, INFORM presented itself as the best option very early in the process which ultimately led to being favored over the competition. The support by INFORM's employees and the performance of the add*ONE Demand Planner also impressed the managers of the Supply Chain, Sales and Controlling divisions. "The whole package of INFORM's software convinced us, above all due to its level of detail and the comfortable handling. add*ONE gave us the impression of being the furthest advanced and the most comprehensive. This tool meets the requirements we have towards ourselves," as Heinemann explains the company's decision.

The good cooperation between Coppenrath & Wiese and INFORM continued during the implementation phase. At the beginning of 2015, the installation of the new software started, and in late summer, the first live tests had already been executed. Trainings were held by means of the typical key user principle: First, a few selected employees from Sales Planning department were trained intensively and as a second step, employees from the Sales department were included. During the entire implementation, employees from Coppenrath & Wiese felt perfectly assisted: "The colleagues from INFORM have intensively supported us and the project at all times. They did not only accompany us while introducing the new software, but also



Tobias Heinemann, head of supply chain management at Coppenrath & Wiese: "The whole package of INFORM's software convinced us, above all due to its level of detail and the comfortable handling. add*ONE gave us the impression of being the furthest advanced and the most comprehensive. This tool meets the requirements we have towards ourselves." (photo: Coppenrath & Wiese)

helped us continuously adapt the whole process," says Heinemann describing the collaboration with the software developer.

Multidimensional demand planning on a weekly basis

At the end of 2015, the add*ONE Demand Planner was smoothly integrated into the follow-up processes, so that INFORM's software

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is now supporting sales planning at the logistics location of Osnabrück, as well as at their site in Leeds, England. A few months after the final acceptance, significant improvements in demand planning already became obvious. INFORM's intelligent algorithms formed the basis for using agile methods at Coppenrath & Wiese. The company is now able to react quickly, flexibly and at all times to new demands of the dynamic food market: fluctuations, especially during holidays and seasonal peaks, can be recognized early and thus shortages can be avoided. "The precise planning on a weekly basis helps us tremendously. We used to view everything on a monthly basis. This can lead to gaps in supply. We are now able to view the exact schedules of promotions. This makes our lives a lot easier," as Heinemann points out. The newly reached level of detail has proven to bring great advantages: "With the added-value information, we are now able to recognize effects on our stock planning process and our procurement, so that we can use INFORM's software as an integrated part of our overall planning process," as Heinemann summarizes the accomplished goals. "We are very satisfied with

The Coppenrath & Wiese project at a glance

- Introduction of add*ONE Demand Planner at the Coppenrath & Wiese food company
- Special challenges: seasonal fluctuations, shortages in production, varying products for the German and the international food markets, adequate controlling of international sales
- Results of the application:
 - Multidimensional demand planning on a weekly basis
 - Improved visualization and data transparency
 - The software offers significant effort reduction and extensive support for the employees

the current solution. We will go on optimizing our logistics with INFORM, in order to continuously improve the entire planning process," Heinemann concludes.

Research into Work Based Learning (WBL) AEDIL

The Association of European Dairy Industry Learning (AEDIL) is a European network of key dairy stakeholders. These include dairy schools, dairy universities, dairy companies and associations. AEDIL was granted an EU wide dairy skills project analyzing the skills needs and gaps, now and the future, for the dairy industry. The Project is led by an EU wide partnership and is composed of four major stages:

1. development of a framework for research of skills needs and supply in the dairy sector;
 2. research
 3. analysis of the data
 4. recommendations on how to close the gaps and even out mismatches.
- The expected impact on dairy schools and universities – upgrade and improve their curriculum.
 - The expected impact on dairy enterprises – know which educational institutions in Europe that educate graduates with the skills they need.

As part of the initial stages AEDIL will need to understand 'delivery mechanisms' where one such method, Work Based Learning (WBL), will be examined. The international trade show drinktec 2017 in Munich will provide an outstanding venue with many key stakeholders present which will be invited to a Work Based Learning short conference. There

will be expert speakers and case studies of best practice. The aim of this small conference is to gather best practice and understand where the good and bad parts of WBL exist and make sure AEDIL's project delivers an exceptional and achievable list of recommendations by November 2019.



AEDIL members, front row from left: Zuleyha Avsar | Turkey, Torsten Sach | Germany, Metin Guldaz | Turkey, Chris Edwards | UK; second row from left: Thierry Michelet | France, Marie Pritzkow | Germany, Lis Korsbjerg | Denmark, Anne-Sofi Christiansen | Denmark



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Questions prefixed with an * are required

Cheese production at its best

ALPMA at interpack

At its 250 m² interpack booth, ALPMA shows just what has made the company so successful over the past seven decades: technologically sophisticated, fully automated and individually configured plants for the smooth and efficient production and processing of cheese. The innovative CUT 32 portion cutting machine, for example, reduces the "give-away" to a minimum with the help of state-of-the-art measuring technology. The semi-hard cheese portioning machine FORMATIC, which will also be on display in Düsseldorf, comes into play even one step earlier in the process and allows you to fill semi-hard cheese curd in whey directly and continuously into the mould. And the new MultiSE boxing machine, with a cutting-edge servo control system which allows cheese-making factories to switch quickly and flexibly between differently shaped cheeses, makes its début at the Interpack. The culinary highlight at ALPMA's booth is the CreamoProt-Bar: here, visitors can sample the products of the ALPMA CreamoProt process for themselves. alpma.de



The new MultiSE boxing machine to switch quickly and flexibly between differently shaped cheeses (photo: ALPMA)



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About 200 representatives of the EU dairy industry and EU officials heard about the Brexit and the Single Market at the EDA Dairy Policy Conference (photo: IDM)

EDA Dairy Policy Conference 2017

Single Market and Brexit: Urgent action is required

The EDA Dairy Policy Conference 2017, held on 22 March in Brussels, underlined the importance of dairy for jobs, growth and investment throughout the Union as well as the importance of a well-functioning Single Market, undisturbed from national barriers. Naturally, the Brexit was also in the focus. IDM compiles the highlights of this important gathering.

Michel Nalet, president of the European Dairy Association (EDA), said that the 60th anniversary of the Treaty of Rome and 25 years EU Single Market, that are being celebrated this year, were good reasons to place Europe into the center of the conference. However, given actual tendencies for renationalisation like mandatory origin labelling – which is unacceptable

for Nalet, urgent action is required both on European and Member State level. The EU dairy industry needs a strong home base in its 500 million consumer market to be able to make sure here are jobs, growth and investments in the rural areas of the Continent.

Antti Peltomäki, Deputy Director-General DG Grow at the EU Commission, pointed out to the High Level Forum for the Food Supply Chain that the Commission has established. The forum will address unfair trading practices in the food chain and barriers in the Single Market.

Peltomäki acknowledged that mandatory origin labelling may form a barrier but the Commission has not (yet) said yes or no to it. The regulations put in place by several countries are

limited in time and Brussels expects reports on how the origin labels have influenced markets after two years.

Brexit: 31 million jobs

The EU food and beverage industry (sales of >€1 trillion, 31m jobs) has a positive trade balance but 90% of food and drink exports have to be made against unfair trade practices, said Gilles Morel Chairman of FoodDrinkEurope and President Mars Chocolate Europe & Eurasia. There is a trend towards protectionism, Morel said, and food is often taken as hostage in political conflicts. Renationalisation policies in Member States are not acceptable and will ultimately lead to lower choice and quality but higher prices, Morel added.

Brexit

The EU Single Market is of uppermost importance to Arla Foods which calls itself a European co-op. Two thirds of Arla's sales are generated in this area, said Kasper Thormod Nielsen, Director for Global Trade Policy & Regulation Affairs at Arla Foods amba. Arla generates 15% of total sales and a third of its European sales in the UK. 70% of Arla's UK business is made of local produce. The rest, 162,000 tons of product, is sent from Continental Arla factories to Great Britain.

British MEP Daniel Dalton left no uncertainty at the EDA forum, however: the Brexit will happen. But the British government aims at keeping markets together as much as possible and pleas for a strategical partnership with the EU. Ireland will be one of the biggest challenges for Brexit negotiations. Dalton expects that the border between the UK and Ireland will not be a closed curtain, but closely monitored. Dalton said it is very likely that the EU and the UK will find transitional agreements on markets as two years of Brexit negotiations just seem too short a period for a constructive accord.

EDA has established a dedicated Brexit working group because the association "is here to move things", as Nalet put it.



Talking about the Single Market (from left): Antti Peltomäki, EU Commission, Wim Kloosterboer, FrieslandCampina, and Gilles Morel, Mars and FDE (photo: IDM)



The Brexit is the biggest uncertainty that the EU dairy market has experienced so far, agreed Michel Nalet, EDA and Lactalis, Prof. Roel Jongeneel, Wageningen University, and Kasper Thormod Nielsen, Arla Foods (photo: IDM)

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The valves can be operated manually, by a pneumatic actuator or in a combined arrangement. The valve is available in a tank or pipe version with TriClamp, Ingold or NEUMO BioControl connection. RIEGER can also supply special connections.

RIEGER has been supplying BioCheck series valves for the past 15 years. In 2010 the valves received 3-A approval and since



With the BioCheck valve (the photo shows the Compact version) one can take samples from closed systems like vessels or pipes in a simple and safe way (photo: RIEGER)

shortly, the new Compact version is also available with EHEDG certificate. Here, jiggering protection, a lockable hand wheel and connections to NEUMO and AWH standards were realised. BioCheck valves are built from DN 6 measure. All types equipped with a flask can be used for a perfectly hermetically closed sampling process. Optional accessories are connections to a mobile steam boiler, fast connection systems and tight-shutting casings for up to 10 bar pressure (BioShut).

RIEGER has delivered hundreds of aseptic BioCheck mini valves for sampling during milk collection on trucks. The referenced list features impressive names such as Friesland-Campina and Zott.

A certificate of German TA-Luft regulation issued by TÜV SÜD confirms that all BioCheck valves fulfil the specifications for leakage proof according to guideline VDI 2440/VDI 3479. www.rr-rieger.de



BioCheck Compact sampling valves may be equipped with a lock (photo: RIEGER)

Adding value to Dairy Nordic Dairy Congress

The count-down for the Nordic Dairy Congress 2017 recently passed 100 days. An ambitious programme with insightful and state of the art substance awaits the participants of the congress, which is held in the heart of Copenhagen, Denmark 7-9 June 2017.

The 44th Nordic Dairy Congress brings together prominent speakers from around the world within the areas of Green Solutions, Healthy Dairy Products, Improving Efficiency and All-Time High Food Safety from both the academic world as well as the industry. Furthermore, the opening is in hands of the CEO of Scandinavia's largest dairy company Arla Foods a.m.b.a, Mr. Peder Tübörgh.

Applicable solutions to dairy

The Coordinator of the Programme Committee, Grith Mortensen, is delighted by the outcome of months of hard work. She considers the programme to be covering some of the key challenges faced by the dairy industry in 2017 with applicable solutions.

- It has been imperative for us that all speakers focus on how their knowledge adds value to the entire dairy industry and make it applicable, she says referring to the title of the conference, Adding Value.

Flash talks and difficult decisions

As an especially positive and new feature of the programme, Grith Mortensen draws attention to the flash talks. For each of the four subtitles: Green solutions; All-time High Food Safety; Improving Efficiency and Healthy Dairy Products there will be three short presentations.

- There has been great enthusiasm among young Ph.D.-students and postdocs, and unfortunately, we had to turn down loads of good presentations, which we would have love to bring on.

Asked what she is most eager to attend at the conference, Grith Mortensen states that exactly that is her core problem:

- I would love to be able to attend to parallel sessions at a time in order not to miss out on anything. Which means that this is the biggest problem. Now, being part of the planning, I must be at the Green Solutions session – and I am really looking forward to that.

Prominent panel debate

The congress concludes with a panel debate, where specially invited and prominent people from the industry bring perspective to the new knowledge with time for discussions and inputs. The panel speakers are Thomas Hahlin Ahlinder, Global Sales Director, Dupont, Niels Petter Wright, CEO, Elopak, Monica Gimre, Vice President, Tetra Pak Processing, Svend Aage Linde, CEO, Eurofins, Åke Hantoft, Chairman of the board, Arla Foods and Karen Hækkerup, CEO, Danish Agriculture & Food Council. The full program may be viewed at nordicdairycongress.com.

The Nordic Dairy Congresses have been celebrated every second or third year for the past 100 years almost. The first congress was held in Oslo, Norway in 1920 and the 2017-Congress will be the 44th.



Grith Mortensen looks forward to share two days with friends and colleagues adding value to dairy.

What: Nordic Dairy Congress
When: 7th – 9th June 2017
Where: Copenhagen, Denmark
Who: People who passions dairy
How: Register at www.nordicdairycongress.com
Deadline: Early bird with € 100 discount March 15th 2017
 Regular deadline: May 22nd 2017



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CO₂-reduced carton pack at Carrefour SIG Combibloc

Carrefour is offering three types of UHT milk in the combibloc EcoPlus 1,000 ml aseptic carton pack in Spain. This carton pack consists of the EcoPlus structure from SIG Combibloc, which generates less CO₂ compared to a conventional 1-litre carton pack of the same format.

The CO₂ saving of up to 28% (depending on the opening solution) with combibloc EcoPlus – compared to the conventional 1-litre carton pack of the same format from SIG Combibloc – is due to the material composition: the main component of combibloc EcoPlus, at more than 80 per cent, is unprocessed cardboard, which is made from the renewable and entirely bio-based FSC -certified raw material wood, and gives the carton stability. A razor-thin polyamide layer serves as a barrier to protect the product from flavour loss and external odours. The milk is filled by Leche Celta. sig.biz



(photo: SIG Combibloc)



(photo: Milco)

Reliable labelling of square PE milk bottles
Packaging



(photo: WMFTG)

Gentle on the product, easy to clean
Technology/IT



(photo: SPX)

Membrane filtration
Technology/IT



(photo: ©PhotoSc/ Fotolia)

Milk fortification
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