



FRUIT PROCESSING

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Anuga FoodTec
Market Price Report
Packaging
Process Technology
Raw Material
Science & Research

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INTERNATIONAL JOURNAL FOR THE FRUIT PROCESSING, JUICE AND SOFT DRINKS PRODUCING INDUSTRY



**Facts worth knowing
about coconut milk**

PROCESS TECHNOLOGY

Success is ... not wasting a drop of juice 78

The direct juice, also known as mother juice, is a type of fruit juice that is ideally packaged immediately after pressing. A distinction is made between clear and naturally turbid or cloudy juice. During production, it is particularly important to gently extract a large amount of the valuable juice from the fruit. Examples of this are orange juice or, in our region of the world, the classic apple juice ...

RAW MATERIAL

Coconut milk: creamy, vegan and lactose-free 80



The coconut is a real all-rounder: the nectar of its flowers yields valuable coconut sugar, whilst refreshing coconut water is obtained from green and unripe coconuts. And many products are made from the white flesh of the coconut too, such as flour, chips, oil and milk. The range of products is extensive and the possibilities for use diverse. Coconut milk, for example, can be widely used as a beverage and food ingredient. It impresses with its taste, consistency and ingredients. The Import Promotion Desk (IPD), the German initiative promoting imports, supports manufacturers of coconut products in Côte d'Ivoire, Ghana, Indonesia and Sri Lanka in exporting to the European market and introduces European importers to potential trading partners and products through events including trade exhibitions – neutrally and free of charge ...

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Whether filling, labelling or packaging – from 26 to 29 April 2022, beverage producers and manufacturers of liquid food products will find tailored solutions for every process step and every kind of container at Anuga FoodTec. The exhibitors of the leading international supplier trade fair for the food and beverage industries will ensure greater efficiency, more operating comfort and optimal product safety with a whole series of innovations. In addition to this comes the rapidly growing number of formats with which the requirements for the flexibility of the aseptic filling systems also increase ...

PROCESS TECHNOLOGY

New generation of valves from GEA improves safety for hygienic production 88

GEA is launching a key element for process safety in the food, beverage, dairy and pharmaceutical industries: the mixproof double-seat valve Type MX from the GEA VARIVENT® family. Safety is crucial for the future viability of production plants, product integrity and the ever-increasing hygiene requirements are regarded as potent drivers of innovation. With advanced process components such as the new “MX” valve generation, GEA supports companies that aspire to play a pioneering role in product safety ...



PACKAGING

New product development in Taiwan: ROOTS launches innovative apricot kernel drink in SIG carton packs . . . 90

ROOTS of Quality Foods, an ambitious start-up company from Taiwan, has launched its first plant-based drink – a new beverage made from apricot kernels from Asian apricot trees. This market innovation is offered in SIG’s combifitSmall 300 ml carton pack, with the added benefit of SIG’s reclosable combiSmart closure. This smart and winning combination ensures convenience for on-the-go lifestyles and provides high visibility on the shelf ...

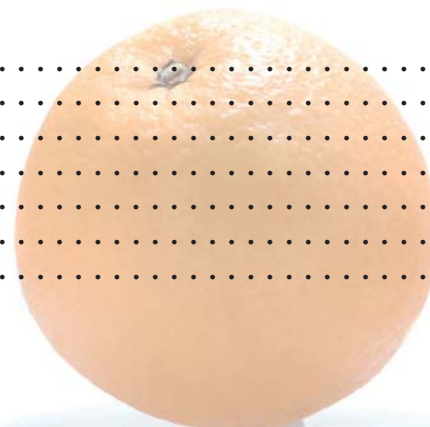
SCIENCE & RESEARCH

**Botanical extracts may support healthy ageing and an active lifestyle
Study on spinach extract shows positive effects on skeletal muscle fitness 92**

A study published by the Sports Physiology Department at the Universidad Católica San Antonio de Murcia (UCAM), Spain, revealed significant improvement in muscle strength and muscle fitness in subjects aged 50-plus who combined moderately intense strength training with a 12-week daily supplementation of natural extract of *Spinacia oleracea L.* Maintaining muscle health and functional capability is a key component of healthy ageing, while improvement in muscle fitness may appeal to a wider audience of sports enthusiasts ...

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Anuga FoodTec 2022: Liquid Processing



| Anuga FoodTec 2022 | Aseptic Filling Systems | Containers | Packaging | PET | Trade Fair |

Solutions for product-protecting and hygienic filling

Whether filling, labelling or packaging – from 26 to 29 April 2022, beverage producers and manufacturers of liquid food products will find tailored solutions for every process step and every kind of container at Anuga FoodTec. The exhibitors of the leading international supplier trade fair for the food and beverage industries will ensure greater efficiency, more operating comfort and optimal product safety with a whole series of innovations. In addition to this comes the rapidly growing number of formats with which the requirements for the flexibility of the aseptic filling systems also increase.

The latest technical updates make it possible for machinery in the beverage industry to adapt to as many different containers as possible and fill the most varied products – from carbonated refreshment drinks to water. Step-by-step, the system manufacturers are networking production processes with the help of digital and smart technologies, so that machines can communicate and coordinate with one another more efficiently. With regard to product safety, the

solutions presented at Anuga FoodTec 2022 embody the state of the art of aseptic technology. Where required, they are also proficient in wet or dry sterilisation and work in the high or low performance range.

Filling under hygienic conditions

Mixed milk beverages, juices, smoothies and near-water products present especially stringent requirements for hygienic filling, as Manfred Härtel from KHS knows. As Product Manager Filling, Härtel is responsible for all filling technology at the Dortmund filling and packaging systems manufacturer. “Filling under aseptic conditions in particular is a protecting process for recontamination-free filling and sealing“, he explains – a technology for which there are hardly any alternatives. In order to ensure the safe filling of sensitive beverages, the linear fillers of KHS can be blocked with a rotative stretch blowing machine. Thanks to the blocking, a possible introduction of contaminants is minimised, which has a positive effect on hygiene and system availability. A transfer module developed to this purpose harmonises the continuous flow of PET bottles with the step-by-step filling process.

The containers are divided up into units of ten pieces each in the process with the help of a handover carousel. In keeping with the industry wish for greater flexibility, the module is available in three variants: for blocking with the stretch blowing machine, with an additional outflow for the Plasmax coating machine or an optional bottle inflow that makes it possible to process both PET and HDPE bottles.

The requirements for volumetric dispensing modules in the filling systems are also high. Thus, for example, the required output quantity must be precisely maintained at high frequencies, which is a challenge, especially for highly viscous liquids and chunky



Entrance North

© all Koelnmesse GmbH

EVENTS

ingredients. In-line dispensers that function completely automatically and aseptically and are installed between processing and filling machines assume this task. Dual filling systems of this kind are equipped with two separate filling modules, which are located in the same microbiological isolator; the first dispenses the pieces of fruit or cereals, while the second completes the aseptic filling process by adding the carrier fluid.

More room to manoeuvre for ESL beverages

The Whitebloc Aero from GEA is also based on proven aseptic technology, but was optimised for the specific requirements of ESL (Extended Shelf Life) products. The kicker: the bottle sterilisation with the help of dry H₂O₂ and the subsequent activation with hot air are possible in one and the same carousel. Sterilisation, filling and sealing take place in a clean room, in which sterile air that is evenly guided upwards under slight overpressure ensures the maintenance of the hygienic and protected environment. Depending upon the product sensitivity and the required minimum shelf-life, various sterilisation goals can be defined to determine which are best suited depending upon the acidity of the products.

Reusable PET containers, which are primarily used for carbonated soft drinks and water, have acquired a large market share in the past decade. However, PET packaging



has played a more subordinate role for ESL products to date. A research project from Krones should now change this. Together with the cooperation partner, the plant manufacturer from Neutraubling was able to develop a reusable PET container that provides sensitive products optimal protection in the cooling chain. A special focus of Ines Bradshaw, responsible development engineer at Krones, was on the cleaning process of the containers, because: "PET is less heat-resistant than glass. We therefore had to find a way to ensure a high degree of microbiological safety and a large number of cycles at lower cleaning temperatures." This was successful thanks to the right choice of the cleaning parameters, especially with regard to the alkaline solution concentration, additive and

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mechanical impact. In microbiological terms, the PET bottles that had already gone through 25 cycles could not be distinguished from new ones. “Temperatures of around 60 degrees Celsius are now adequate to reliably remove dried protein, fat and starch contamination from the containers“, according to Bradshaw. The project has reached an important milestone with this demonstration of practicability and is now ready for the next big step: the preparations for the technical field test are proceeding at full speed.

On manufacturing, filling and packaging

From processing technology, filling systems and packaging machinery to IT solutions – the exhibitors of Anuga FoodTec 2022 are planning and realising complete lines that cover every step of production. Visitors facing the question whether they should invest in a new system or the refitting of the existing system experience first-hand which solutions there are for the beverage and food industries on the Cologne fair grounds. The filling technology for PET and glass containers, as well as cans is complemented by an extensive portfolio of the machines required for the labelling, packaging and palletising of the finished containers.

With around 1,000 exhibitors, Anuga FoodTec offers the complete technology spectrum for the manufacture and packaging of food products and beverages from 26 to 29 April 2022. The trade fair will present itself in 2022 as a “special edition”, and thus as a linking up of the compact



physical trade fair with the high-reach digital platform AnugaFoodTec @home. The trade fair will be accompanied by a high quality specialised event and congress programme.

Event information:

Tuesday, 26.04.2022, 10:00 a.m. – 3:10 p.m., Main Stage – Topics, Trends, Technologies, Hall 6, Stand A 100/C 129 “Sustainable bottles and packaging for beverages”

Organiser: DLG, the German Agricultural Society

Friday, 29.04.2022, 10:00 a.m. – 11:30 a.m., Main Stage – Topics, Trends, Technologies, Hall 6, Stand A 100/C 129 “Intelligent packaging – modern packaging “thinks” ahead”

Organiser: DLG, the German Agricultural Society

Koelnmesse is the organiser of Anuga FoodTec. The DLG, the German Agricultural Society, is the professional and industry sponsor of Anuga FoodTec.

About Koelnmesse

Koelnmesse is an international leader in organising trade fairs in the field of food and beverage processing. Anuga FoodTec and ProSweets Cologne are established, world-leading trade fairs, hosted in Cologne/Germany. In addition to the events at its Cologne headquarters, Koelnmesse also stages further food technology trade fairs with different sector-specific areas of focus and content in key markets across the world, including India, Italy and Colombia. These global activities enable Koelnmesse to offer its customers bespoke events and leading regional trade fairs in a variety of markets, thus creating the foundation for sustainable international business. Koelnmesse is also ideally positioned in the field of food and beverages with its leading international trade fairs Anuga and ISM and its global network of satellite events.

www.koelnmesse.de

Koelnmesse GmbH

www.anugafoodtec.com

Elea PEF – the low heat processing solution for premium quality juices and smoothies



Elea will present its latest range of PEF Advantage systems at Anuga FoodTec. Try product samples and see a demo unit in action. Make sure to visit booth No. B-069 in hall 10.1 to discuss product and process benefits and what PEF can do for your product. © ELEA

Pulsed Electric Field (PEF) is a continuous process that inactivates microorganisms at low temperatures. The technique is based on electroporation, a non-thermal effect creating pores in cell membranes. With its low energy and time requirements, PEF is the ideal processing solution for premium quality fruit and vegetable juices and smoothies.

Today’s consumers wish for healthy, high-quality products with minimal processing and environmental footprint.

Elea PEF Advantage systems allow meeting those needs by making targeted energy use. Benefits are obtained at two production stages – the raw material as well as the final product.

Processing the raw material causes fast and efficient cell disintegration and less need for mechanical, thermal treatment or enzymatic treatment. As a result, high yield and quality are achieved for different kinds of fruits and vegetable mashes, such as carrot, beetroot or apple.

Short time and low energy pulses are used to inactivate pathogenic and spoilage microorganisms to make the product safe and to extend its shelf life with minimum effect on nutrients, colour or flavour. Combining PEF with mild heat allows energy recovery as well as the use of existing processing equipment. Less heat load will result in superior product quality in comparison to thermal pasteurization. An extended shelf life helps to increase market reach and to reduce retail waste. The process is continuous and applied before filling into the product package, hence all packaging materials and formats are suitable for PEF.

Elea PEF Advantage systems are designed following global machinery and safety standards and range from 50 to 10.000 l/h treatment capacity and can be easily integrated. An integrated process monitoring records all relevant treatment parameters and ensures product quality.

Hall 10.1. – Booth Bo69

Flottweg presents a strong duo at Anuga FoodTec 2022 in Cologne

In keeping with the guiding theme of “Smart Solutions – Higher Flexibility”, Flottweg will be presenting two of its most innovative machines, the Z3E and the FDS2000, at Anuga FoodTec from April 26 to 29, 2022.

Modular, easy to maintain and powerful – equipped with these features, the Z3E decanter centrifuge performs key functions in a wide variety of areas in the food industry. Thanks to its modular design, the high-performance decanters from the Z series can be individually adapted to specific requirements and applications – entirely in keeping with the motto of the trade show. Due to special features such as the hygienic design of all product contact parts as well as the easy-to-clean components and surfaces, the Z3E is also ideal for separation applications in the food industry.

In addition, Flottweg will be presenting a new product at the leading trade fair in the form of the FDS2000 nozzle separator. Flottweg has succeeded in redefining the nozzle separator, thanks to its expertise and experience from over 65 years: The FDS2000 impresses with its simple, fast and uncomplicated handling and, with the help of a sophisticated energy recovery concept, Flottweg’s new nozzle separator allows significant savings in energy and resources. An innovation that raises the bar for separation technology in the food sector to a new level and at the same time operates ecologically and sustainably.



Hall 4.1 – Booth Co68

FDS2000 nozzle separator

© Flottweg

Reliable and close to the customer: KHS presents future-proof line and packaging systems at Anuga FoodTec

From April 26 to 29 the KHS Group will be presenting its entire portfolio of modern filling technology and environmentally-friendly packaging systems at Anuga FoodTec in Cologne, Germany. With its efficient InnoPET BloFill ACF-L block system the systems provider looks to the future of aseptic filling. A further focus will be on the new standard interfaces for communication between KHS machines and customer IT systems. The turnkey supplier also continues to devote itself to saving on resources and protecting the environment with its holistic packaging systems.

For the filling of sensitive beverages in a hygienic environment the turnkey supplier provides an extensive portfolio of environmentally-friendly systems for various container designs and materials. With the InnoPET BloFill ACF-L stretch blow molder/filler block the Dortmund engineering company presents a further development for sensitive beverages in PET bottles that is especially low on space. The new system scores with a multitude of innovations, one being its new switching valve. This controls the volume of the inflow to the actual filling valve and thus permits a total of four different filling speeds. Bottle volumes both large and small with varying viscosities can be perfectly processed on this machinery – with extremely low foaming an added bonus. The filling process is stored in the product recipes; there is no need for manual conversion. This makes for a reproducible filling quality and improves filling accuracy. The result is a stable output of beverages with different properties, in turn boosting efficiency and the flexibility required to fill a wide assortment of products.



With the InnoPET BloFill ACF-L stretch blow molder/filler block KHS provides a system solution for sensitive beverages in PET bottles that is especially low on space. © all KHS

Reliable data transfer through new standard interfaces

As part of its Basic Line Monitoring process KHS has developed new standard interfaces for line monitoring and order control. The respective modules facilitate communication between KHS machines and beverage producers' IT



In addition to its modern filling technology and various digital solutions the KHS Group will be exhibiting its entire range of future-proof packaging systems in Cologne.

systems. Furthermore, regular updates and new versions ensure a high, reliable quality of data. With this new standardized approach the systems supplier's and customer's own IT environments can be connected up to the machines even better and even more economically than before. This renders previously required time- and cost-intensive customized harmonization and programming superfluous.

Environmentally-friendly packaging systems

In addition to its modern filling technology and various digital solutions KHS will be putting its broad range of future-proof packaging systems on display in Cologne.

The newly developed Innopack CNP or Carton Nature Packer turns beverage cans into stable packs using top-ers or clips made of corrugated cardboard or solid board. Packs of four, six or eight standard and sleek can formats holding between 250 and 580 milliliters can be produced at an output of up to 108,000 containers per hour.

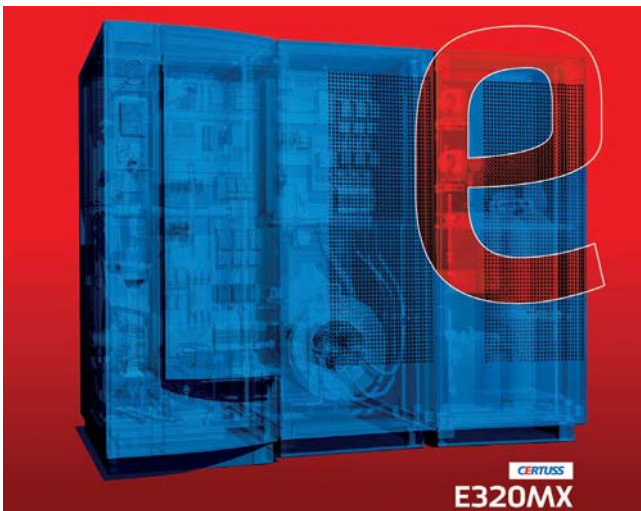
Another packaging alternative is Nature MultiPack. This resource-saving system joins beverage containers together with dots of adhesive to form a stable pack and saves up to 90 % in materials by doing away with the secondary packaging. Nature MultiPack is now also available for the high-performance range, with throughputs of up to 108,000 containers per hour possible when running at overcapacity. Depending on the format, the machine manufactures up to 450 packs of four a minute.

Simple retrofits on existing packaging machines

Moreover, KHS offers extensions for existing Innopack machines. The new alternative that wraps beverage cans in paper instead of film is one such retrofit, for instance. Customers can opt for more flexibility by switching between film and paper packaging as required or permanently switch to paper.

Hall 5.1 – Booth B051, C058

New from CERTUSS: The new electric steam generator



CERTUSS E320MX © CERTUSS

The German family-owned company CERTUSS presents the world's first at Anuga FoodTec: The CERTUSS E320MX is the new Generation E electric steam generator. In terms of efficiency, power adjustment and space utilization, this development represents a new performance class:

- High efficiency through CERTUSS PLUG & PLAY.
- Space-saving due to compact design

- Modularly expandable for capacities from 10 to 320 kg/h
- Powerful with a wide range of applications thanks to operating pressure up to 16 bar
- Extra for culinary steam quality in the stainless steel model variant
- And much more

The company will present the many advantages of the CERTUSS E320MX for the first time at Anuga FoodTec.

For more than 60 years, CERTUSS has been supplying companies in over 100 industries worldwide with high-performance high-speed steam generators. Consistent research and development as well as a team of excellently trained specialists enable series production at the highest level. CERTUSS steam generators are environmentally friendly, efficient and reliably meet current ecological standards and are available in various series. The company develops individual solutions e.g. for the food and beverage industry and many more.

Hall 10.1 – Booth Fo69

BUSINESS NEWS

Orange season: Florida freeze

South-Central Florida experienced about of extremely cold weather during the last few days of January, resulting in frost and icing throughout many Floridian orange groves. In the immediate aftermath of this event, farmers initially reported that the damage to their groves was minimal. However, more recent estimations paint a clearer picture of the frost's effects, with certain grove locations recording temperatures as low as ~20 degrees Fahrenheit lasting for upwards of two days. Such sustained conditions of frost have not been observed in Florida for over five years. Temperatures below 30 degrees often lead to bloom damage on citrus trees, which can drastically affect the quality of their subsequent harvests.

Fruit droppage rates also appear to be a major issue for many Florida citrus growers post-freeze. As temperatures drop for sustained periods of time, the juices contained within citrus fruits become frozen, resulting in premature fruits dropping from their branches. This can happen in as little as 6 hours after exposure to substantial freezing temperatures; Florida's freeze lasted for two days. As such, it

will be difficult for farmers to fully assess the damage dealt to their groves until temperatures warm up to regularity once again. Other conditions expected to affect citrus trees in the region are wood injury and external fruit damage, both of which will reduce harvest levels.

Florida has already weathered a challenging orange season up to this point, with fruit estimates falling from 47 million boxes to just 44.5 million midway through January. These shifting numbers represented a 13 % reduction in harvest size when compared to Florida's previous orange season, and it seems as though the difference between the two will only continue to grow from the effects of the freeze.

The global orange market is quite volatile currently, with prices rising on a regular basis due to an ongoing drought in Mexico and a difficult growing season for Brazil (frost has also been an issue there). As such, it seems likely that orange oil and its derivatives will continue to rise in price as availability of new materials reduces.