SERIOUSLY SAFE

HOW A PIONEERING SWEDISH COMPANY IS TAKING THE DETECTION OF FOREIGN BODIES TO THE NEXT LEVEL

READ MORE ON PAGE 10
2012

FRUIT PROCESSING –
The name of the game in fruit processing

Read to lead …

Simply the Best. The strive of every professional is to provide an optimum product or service – better than all the rest.

Topical expert knowledge is required to stay abreast. In the fruit processing industry, the professional magazine FRUIT PROCESSING has been providing what is needed to allow constant improvement and sustain your competitive advantage.

Overviews and outlooks on crops and produce together with specific sales figures per country are featured. Findings from scientific research and development as well as product and company news are covered in every issue.

Still to come this year are:
• beverage packaging, e.g. glass, paperback, PET, cans
• filling technology, e.g. ACF, conveying, capping
• juice treatment, e.g. filtration, sterilization and pasteurisation
• organic drinks, e.g. markets, products, marketing
• quality control, e.g. analytics, nutrient profiles
• shows and fairs

FRUIT PROCESSING is issued every two months as double issue, and made available in print as well as online. It is read in 80 countries worldwide by more than 30.000 readers per issue.

Secure your future success.
Subscribe the printed magazine and/or opt for the online version.

Please note:
For cancellation written notice must be given 4 weeks prior to the end of subscription period.

Subscriber Details:

Family Name: First Name:

Department: Position:

Company:

Street:

Country/ZIP Code: City/Town:

Int. Phone: Int. Fax:

E-mail:

Date: Signature:

Mode of Payment

☐ Credit Card*

*If you wish to benefit from our credit card service, please indicate your card details below. Yes, please charge my credit card:

☐ American Express ☐ Eurocard/Mastercard ☐ Visa

Card No.: Expiry Date: Card Control Number*

* Eurocard/Mastercard and Visa: Backside the last three numbers
* American Express: Frontside, right in the middle, four-digit

Card Holder’s Name:

Date, Signature:

Please indicate your VAT-ID number:

Print Subscription 2012
FRUIT PROCESSING
www.fruit-processing.com

as of issue ______________________
(backdating of subscription possible)

☐ Germany:
101 EUR incl. mailing costs

☐ Europe:
115 EUR incl. mailing costs
plus VAT for EU-Member-States without ID-No.*

☐ Overseas:
124 EUR incl. mailing costs

Online Subscription 2012
(Password protected login under www.fruit-processing.com)

For all countries:
120 EUR plus VAT, if applicable*

* Combined with a print subscription of FRUIT PROCESSING, the rate for an online subscription is reduced to 60 EUR plus VAT, if applicable.

confructa medien GmbH
publishing college
Raiffeisenstrasse 27
D-56587 Strassenhaus/Germany
www.confructa-medien.com

Department: Subscription
Phone +49 (0) 2634 9235-15
Fax +49 (0) 2634 9235-35
reader@fruit-processing.com
www.fruit-processing.com
While even at the change of the year, politicians in Brussels are occupied with the well-known and controversial communication on the topics of Euro and financial crisis, telecommunication data retention and minimum wage demands, the millennial generation are taking over the business scene. Following on the heels of the baby-boomers (born in the baby boom of the post-war years) and the Generation X (born in the 1960s and 1970s), a new generation, the "Millennials" is arriving. Raised on internet and mobile communication technology (which is why they are also called Digital Natives), these so-called Millennials will have a sustained influence on the working world of the coming decades and the consumer environment.

In contrast to Generation X, who understood the difference between growth and recession, and for the first time, had to make do with less prosperity and economic security which was not due to the effect of war, the Millennials are growing up with a clear awareness of sustainability.

In the estimation of the Brazilian futurologist Rony Rodrigues, the consumers of tomorrow only buy products which promise a sustained improvement in their lives. The 32-year-old anthropologist and futurologist, owner of the trend research agency Box 1824, has declared, "The end of excessive consumption. Consumption is the new cholesterol. Millennials feel guilty when they consume without thinking – even though they have a great deal more money at their disposal than their predecessors the Generation X or the Baby Boomers," he explains the results of his latest study. The next generation’s changed consumer behaviour is a call to revise our ideas, independent of which price class our business is in. New opportunities and a secure future instead of more possessions are the future requirements of the new generation.

It remains to be seen which brand and marketing strategies will be the best for the beverage world in this respect. In any case, thanks the leap year 2012, all those responsible have an extra day in which to shape the future.

I wish you a good start to the year 2012 with many challenges, especially for the beverage industry

Yours

S. Brennich
The Future is Expecting You.

Pure Refreshment: Visit the International Supplier Fair of the Food Industry.

Experience the innovations of the future – for 4 days in one location – from processing and packaging to analysis technology.

By the way: In the industry sector of „Technology for Beverages” alone, 50 % of the more than 1,300 exhibitors will be presenting their developments for the beverage industry. This is another reason for you not to miss out on 2012.

Get ready for the future:
www.anugafoodtec.com

27 – 30 March 2012 in Cologne
AUDITING FUNCTIONAL PHYTOCHEMICALS DURING FRUIT PROCESSING

A Oliveira, M Pintado, D Almeida

RATIONAL FOR A NUTRITIONAL AUDIT TO FRUIT PROCESSING

Industrial processing assures the regular supply of fruit matrices, year-round and across the globe. Additionally, it makes possible the creation of an enormous diversity of fruit-based or fruit-flavoured food and beverages. Fruit processing can be divided into two types of operations, often performed by specialized companies: first and second transformations. First transformation converts the perishable fresh fruit into more stable processed products with longer storage lives. The most common processing methods used in first transformation are individually quick freezing (IQF) of fruit pieces, aseptic pulps and purees and concentrated pulps and juices. Second transformation operations use frozen fruit or aseptic matrices, combine them with other food ingredients (e.g. flavourings, colorants, hydrocolloids) and apply heat treatments to assure microbial stability. These preparations can be subsequently used to develop a wide range of fruit-based foods such as beverages, dairy products (e.g. fruit yoghurt or cheese), ice-cream or pastry products.

Fresh fruit matrices are dramatically changed during processing due to the rupture of cell compartmentation and direct exposure of fruit substances to air, the physical effect of processing agents (e.g., freezing and heating), and the interaction of fruit cellular contents with other food ingredients. How the final nutritional and phytochemical composition of processed fruit-based foods and beverages relates to that of fresh fruit remains largely unknown.

There is strong epidemiological evidence for the benefits of fresh fruit consumption for the preservation of human health. Fruit are a valuable source of vitamin C, bioactive phenolic compounds, and carotenoids. These are natural fruit components able to prevent oxidative stress, thus benefiting human health, and should be considered as a key quality attribute of fruit and their products. It is, therefore, warranted to assess whether processed fruit preserve these beneficial substances present in fresh fruit. In fact, processing can increase or decrease the solubility and bioavailability of phytochemical substances and nutrients from fruit matrices becoming more accessible to extraction or liberation. For example, the release of lycopene in tomato is enhanced by heat treatments and tomato concentrate (and food products made thereof, e.g. ketchup) has more bioavailable lycopene than the fresh counterpart.

Here we describe an approach to the nutritional and functional audit of fruit processing, aimed at assuring a better relation between the composition of fresh and processed fruit. The experimental data were obtained in two model systems – strawberry and peach, rich in phenolic and carotenoid phytochemicals, respectively.

PROCESSING PARAMETERS AND NUTRITIONAL QUALITY

Thermal processing is widely used in the food industry due to its proved efficacy in preventing enzymatic changes and microbial spoilage. Heat treatments, however, may cause undesirable biochemical changes that affect the sensorial and nutritional quality of the final product. Thermal decomposition is a major cause for losses of some of the bioactive compounds. Losses can be mitigated if processing parameters, such as temperature and holding time, are adjusted to assure nutritional preservation in addition to microbial safety.

Freezing is another very important method for preserving fruit quality during long-term storage. During freezing most of the liquid water is converted into ice, reducing microbial growth and most enzymatic activities nearly to zero. However, freezing causes physical and chemi-
cal changes in fruit matrices due to the ice formation and subsequent stresses in cell volume, water displacement among pools, and mechanical damage.

Storage time after processing is a key variable with enormous implications in supply-chain management. Time, however, is a central variable requiring management in all kinetic processes and determining the final concentrations of nutritional and bioactive compounds in foods and beverages. Chemical reactions involving bioactive phytochemicals proceed at different rates depending on variables intrinsic to food matrices as well as on variables related to processing conditions (e.g., $a_w$, pH, temperature, oxygen availability).

**DEVELOPMENT OF A NUTRITIONAL AND FUNCTIONAL AUDITING SYSTEM**

A generalized process diagram for fruit processing is represented in Fig. 1. Unit operations used in particular processes vary, but all processes must assure food safety, compliance with regulations, and product quality to meet consumer expectations. This flow diagram can be used to identify critical points in which nutritional quality can be compromised and support an audit system.

The purpose of the nutritional audit is to determine the impact of processing conditions on fruit phytochemicals and to identify critical points in which nutritional quality can be severely compromised.

An overall evaluation of the processing system is required to determine whether the system adequately preserves nutritional and functional properties of fruit-based foods and beverages. To develop the audit system one must:

A. Identify the phytochemical markers that might relate to the overall nutritional and functional quality of the matrix. In the present study, total antioxidant activity, total phenolics, total anthocyanins, and total carotenoids were assessed by expedite methods, followed by the quantification of individual phytochemicals by chromatographic techniques (HPLC-DAD);

B. Analyse the process diagram to identify critical points where nutritional quality can be compromised. Freezing, ingredient incorporation, pasteurization, and storage time were considered critical operations and their effects on phytochemicals were studied.

---

**Tab.1: Formulation of strawberry and peach preparates.**

<table>
<thead>
<tr>
<th>Fruit</th>
<th>Quantity (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strawberry</td>
<td></td>
</tr>
<tr>
<td>Strawberry IQF</td>
<td>50</td>
</tr>
<tr>
<td>Sugar</td>
<td>27</td>
</tr>
<tr>
<td>Water</td>
<td>11.9</td>
</tr>
<tr>
<td>Glucose+fructose syrup</td>
<td>8</td>
</tr>
<tr>
<td>Starch</td>
<td>2</td>
</tr>
<tr>
<td>Strawberry flavour</td>
<td>0.48</td>
</tr>
<tr>
<td>Cochineal carmine</td>
<td>0.0095</td>
</tr>
<tr>
<td>Other hydrocolloids</td>
<td>0.38</td>
</tr>
<tr>
<td>Peach</td>
<td></td>
</tr>
<tr>
<td>Peach IQF</td>
<td>40</td>
</tr>
<tr>
<td>Water</td>
<td>46.9</td>
</tr>
<tr>
<td>Peach puree concentrate</td>
<td>10</td>
</tr>
<tr>
<td>Flavours</td>
<td>0.19</td>
</tr>
<tr>
<td>Carotene colouring agent</td>
<td>0.1</td>
</tr>
<tr>
<td>Sweeteners</td>
<td>0.167</td>
</tr>
<tr>
<td>Starch</td>
<td>2.3</td>
</tr>
<tr>
<td>Other hydrocolloids</td>
<td>0.15</td>
</tr>
<tr>
<td>Citric acid</td>
<td>0.07</td>
</tr>
</tbody>
</table>

**B. Analyse the process diagram to identify critical points where nutritional quality can be severely compromised.**

**FUNCTIONAL INGREDIENTS**

Efficiency at its Best

The new decanter series ensures that wine and fruit juice producers get premium quality and high product yields. Thanks to the deep-pond design, it is setting new standards in terms of throughput and clarification efficiency. Oxygen intake is eliminated as far as possible.

The power consumption is extremely low despite the boost in performance – made possible by simply reducing the solid discharge diameter. A multifunctional design enables flexible deployment of the machine in changing fields of application.

It is very easy to clean and can handle the most demanding duties due to its robust construction and absolute reliability.

Westfalia Separator® ecoforce: Efficiency at its Best.

Your direct route to 24/7 service:
www.westfalia-separator.com/service

GEA Mechanical Equipment
GEA Westfalia Separator Group
Werner Habig-Straße 1 · 59302 Oelde (Germany)
Phone +49 2522 77-0 · Fax +49 2522 77-2089
www.westfalia-separator.com
FUNCTIONAL INGREDIENTS

compounds, such as flavanols, hydroxycinnamic, and hydroxybenzoic acid derivatives was observed. Carotenoids of fresh peach decreased 28% after freezing. In strawberry, freezing induced a significant increase in extractable anthocyanins, cyanidin-3-glucoside and pelargonidin-3-glucoside (23%). As a general conclusion, freezing causes minimal destruction of phenolic compounds in fruit and can even increase the solubility of some phenolics.

Frozen fruit used in food and beverage formulations are usually mixed with other ingredients. The resulting changes in water activity and interactions with the added food ingredients may affect phytochemicals. These effects are illustrated by the results obtained in fruit preparates developed for dairy applications (Table 1).

Frozen IQF of peaches caused a 35% decrease in antioxidant activity. Total phenolic content remained unaltered but an increase in some classes of phenolic compounds, such as flavanols, hydroxycinnamic, and hydroxybenzoic acid derivatives was observed. Carotenoids of fresh peach decreased 28% after freezing. In strawberry, freezing induced a significant increase in extractable anthocyanins, cyanidin-3-glucoside and pelargonidin-3-glucoside (23%). As a general conclusion, freezing causes minimal destruction of phenolic compounds in fruit and can even increase the solubility of some phenolics.

Frozen fruit used in food and beverage formulations are usually mixed with other ingredients. The resulting changes in water activity and interactions with the added food ingredients may affect phytochemicals. These effects are illustrated by the results obtained in fruit preparations developed for dairy applications (Table 1).

EXPERIMENTAL VALIDATION

Strawberry (Fragaria xanana ‘Camarosa’) and peach (Prunus persica ‘Catherine’) were used as model systems representative of fruit rich in phenolics and carotenoids, respectively. Both fruit are commercially important for their volumes and wide range of industrial applications. Specific extracts were obtained from fresh fruit, and before and after freezing, after ingredientation, pasteurization and at intervals during storage of processed fruit.

The extracts were analysed for total antioxidant activity by the ABTS method, total phenolics (Folin-Ciocalteu), total anthocyanins (spectrofotometry), and total carotenoids (spectrofotometry). Individual phytochemicals were separated by HPLC, detected with a diode array detector, identified and quantified using known standards.

Experimental analyses were performed in samples subjected to the different conditions to validate the proposed model. The effect of freezing on phytochemicals was assessed in fresh fruit before freezing and after 4 days at -20 °C. Freezing of fresh peaches caused a 35% decrease in antioxidant activity. Total phenolic content remained unaltered but an increase in some classes of phenolic compounds, such as flavanols, hydroxycinnamic, and hydroxybenzoic acid derivatives was observed. Carotenoids of fresh peach decreased 28% after freezing. In strawberry, freezing induced a significant increase in extractable anthocyanins, cyanidin-3-glucoside and pelargonidin-3-glucoside (23%). As a general conclusion, freezing causes minimal destruction of phenolic compounds in fruit and can even increase the solubility of some phenolics.

Frozen fruit used in food and beverage formulations are usually mixed with other ingredients. The resulting changes in water activity and interactions with the added food ingredients may affect phytochemicals. These effects are illustrated by the results obtained in fruit preparations developed for dairy applications (Table 1).

Fruit preparates were then pasteurized at 92 °C for 8 min and cooled to 8 °C in an aseptic container under an inert nitrogen atmosphere. Pasteurization induced significant decreases in strawberry antioxidant activity (20%), total phenolics (26%) and total anthocyanins (30%), respectively (Table 2). Peach preparates, in contrast, did not suffer significant changes in phenolics neither carotenoids with pasteurization (Table 2). These results demonstrate the influence of fruit tissue organization on their susceptibility to heat treatments.

| Tab. 2: Phytochemical classes in strawberry and peach as affected by processing operations. a Different letters represent significant differences between samples. |
|-----------------------------|------------------|------------------|------------------|------------------|
| Fruit          | Sample          | Total antioxidant activity (ABTS•+1 (mg ascorbic acid/g fresh weight) | Total phenolic (mg gallic acid/g fresh weight) | Total anthocyanins (mg pelargonidin-3-glucoside/g fresh weight) | Total carotenoids (mg β-caroteno/g fresh weight) |
| Strawberry     | Frozen IQF      | 1.94±0.23 a      | 1.67±0.25 a      | 0.26±0.02 a      | -                |
|                 | After Ingredientation | 3.01±0.25 b    | 2.44±0.14 b      | 0.33±0.03 b      | -                |
|                 | After Pasteurization | 2.38±0.12 c    | 1.80±0.13 a      | 0.23±0.04 a      | -                |
| Peach          | Frozen IQF      | 0.279±0.034 a    | 0.287±0.012 a    | -                | 0.0044±0.002 a   |
|                 | After Ingredientation | 0.62±0.06 b     | 0.56±0.04 b      | -                | 0.014±0.001 b    |
|                 | After Pasteurization | 0.64±0.03 b    | 0.50±0.02 b      | -                | 0.015±0.002 b    |

Fig. 2: Total antioxidant activity (•) and total phenolics (I) during storage of a pasteurized strawberry preparate.

Fig. 3: Changes in the anthocyanins cyaniding-3-glucoside (•), pelargonidin-3-glucoside (L) and pelargonidin-3-rutinoside (L) during storage of a pasteurized strawberry preparate.
Fruits like peach are more resistant to thermal treatment than strawberry where loss in anthocyanins is significant. Freezing increase subsequent losses by the heat treatment. The addition of non-fruit food ingredients also interact with the matrices and may enhance the phytochemical value of fruit-based foods and beverages.

Storage time after treatments affects more strongly strawberry phenolics and carotenoids. In fact increased solubility of some peach phenolics was observed. Most of the phenolics are more easily preserved than the carotenoids but anthocyanins are labile. Carotenoids like zeaxanthine and ß-cryptoxanthine and anthocyanins like cyanidin-3-glucoside, pelargonidin-3-glucoside and pelargonidin-3-rutinoside can be used as markers to audit the effects of processing conditions on fruit phytochemicals.

ACKNOWLEDGEMENT

Based on work supported by QREN, Portugal, through project FRUTAMais and by the Ph.D. scholarship SFRH/BD/75041/2010 to A. Oliveira.

CONCLUSION

Processing operations affect the extraction of phytochemicals from fruit matrices. Freezing can bring some benefits for fruits rich in phenolics since it increases in their extraction from the matrix. However, it is not advantageous for fruit rich in carotenoids due to an important loss of this class of phytochemicals.
When food is contaminated with foreign bodies, everyone loses, including the consumer, the retailer, and the producer. The very real threat this poses to your customers, and to your business, makes this no laughing matter. Food Radar Systems AB of Sweden is taking the fight against food contamination to a whole new level, detecting types of foreign bodies that are all but invisible to traditional detection methods.

Although detection technologies have come a long way during the last few years, low-density foreign bodies such as plastic, wood, and fruit stones are still invisible to all established detection systems—this is something that Food Radar Systems decided to change.

The LOOK100® is the latest weapon in the arsenal of safety technology, and is a sensor system designed for emulsions and pumpable products. The LOOK100® has the capability of detecting not only the denser foreign bodies (i.e., metal, stone, and glass) but is particularly suited to foreign bodies such as wood, plastic, bone, extraneous vegetable matter, and even insects that, up to now, have gone undetected and straight to the consumer. (Figure 1)

WHY CONSIDER THIS NEW TECHNOLOGY?

1. SAFETY FIRST.

A piece of hard plastic, which can be easily detected and removed by the LOOK100®, can be as dangerous to consumers as a piece of glass. The protection your business will enjoy extends also to soft plastic (e.g. plastic bags), wood, pits and virtually all non-dense foreign bodies. (Figure 2)

2. QUALITY AND CONTROL.

Even lumps of the food product itself (such as lumps of starch, spices, pasta or rice) can be detected and removed with no fuss. This technology can help safeguard the quality of product and the control over your manufacturing process. (Figure 3 and 4)

3. LEGAL COMPLIANCE.

All food manufacture is covered by the Food Safety Act (1990). The Act states that if food is contaminated by foreign bodies, or in some other way falls short of the standard demanded by the purchaser, the seller will have committed an offence. The Act also permits a defence against prosecution based on taking 'all reasonable precautions' to prevent such occurrences. The LOOK100® is a way of staying at the cutting-edge of quality assurance.

4. IT’S JUST GOOD BUSINESS.

Any incidence of foreign body contamination is damaging to both the manufacturer and retailer. It can damage
trust in the brand, and the cost in time and money of legal proceedings can be vast.

“We find this technology very interesting for helping to eliminate low density foreign matter, in particular plastics, thereby further ensuring the quality of the product we deliver to our consumers.”

Michael Philp, European Process Improvement Manager H.J. Heinz

HOW IT ALL WORKS

The technology is based on a unique and patented technique that uses microwaves to detect foreign bodies. The detection system is designed for clean-in-place (CIP) and consists of four parts:

A. An operator panel.
B. A sensor unit.
C. A rejecter (valve) unit.
D. A buffer pipe.
(Figure 5)

All system components are hygienically contained in stainless steel cabinets, which are IP67 classified or higher. The sensor does not have any moving parts, and the rejection unit is a three-way valve, which has been certified by the European Hygienic Engineering & Design Group. The entire system takes up about one metre of pipe length and is, therefore, very convenient and easy to install. The operator panel consists of a computer with a touchscreen interface. There is no need to calibrate the system for all your different products. It is normally enough with just two product group categories: smooth or particulate. The system is very user-friendly and the operator only needs to choose the right product group setting.

The operator panel also provides statistics on the rejects and production time, as well as a display showing the product flow background noise and the threshold. When an object is detected, the signal crosses the threshold and the object is automatically rejected (Figure 6).

The sensor unit consists of two parts (which are both inside the cabinet), a sensor head and a specially developed industrialised vector network analyser, called MTRX.

The MTRX is controlled by the computer and generates a microwave signal. This microwave signal is then fed to the sensor head.

The sensor head is a piece of 2.5-inch, acid resistant stainless steel pipe, with eight hygienically sealed slots, through which the microwaves are transmitted and received. The system measures the dielectric properties of the food flow and, if an object differs from the norm, it is detected and rejected from the flow.

The received microwave signal is digitised in the MTRX, and the measurement data is sent to the computer for processing. If an object is detected, the flow speed of the object is calculated and the computer sends this information back to the MTRX. The MTRX controls the exact timing of the signals to the pneumatic rejection unit, thus ensuring successful rejection of the contaminant. The information is then logged by the system, which can also e-mail a daily report to selected recipients.

The buffer pipe, located in between the sensor unit and the rejection unit, is optimised in length to ensure that the calculations can be performed in time and that the rejection unit is allowed enough time to open. The speed of the foreign object is measured and the eject signal is precisely defined, no matter if it is travelling at the centre or towards the outer edge of the flow, which have very

QUALITY ASSURANCE

“We find this technology very interesting for helping to eliminate low density foreign matter, in particular plastics, thereby further ensuring the quality of the product we deliver to our consumers”
QUALITY ASSURANCE

In the early 2000s, dialogues with major food companies increasingly highlighted the problem of undetectable objects, due to such causes as the growing usage of plastics in the industry. In response, SIK (The Swedish Institute for Food and Biotechnology) started a joint industrial project to address the growing problem of ‘undetectable’ foreign bodies. SIK had several years of microwave knowledge in-house and was located in Gothenburg, Sweden — one of the world’s real hubs of microwave technology experts. As a result, SIK enjoyed full access to world-class technology companies and specialists, including academia, who could help assess the concept.

The idea of a unique detection technology using microwave sensors soon created great enthusiasm amongst the industry experts linked to the project. In 2003, SIK brought in external investors and Food Radar Systems AB was established as commercial company. The objective was to develop the technology and a system suited to the needs of the industry. In 2007, a prototype of a pipe sensor was tested and, in 2009/2010, the company started to actively market its system towards certain applications.

BABY FOOD TAKING THE INITIATIVE

Food Radar Systems has installed the LOOK100® at several global babyfood producers. It seems predictable that the baby food industry would be the first to adopt this technology.

In early 2000s, dialogues with major food companies increasingly highlighted the problem of undetectable objects, due to such causes as the growing usage of plastics in the industry. In response, SIK (The Swedish Institute for Food and Biotechnology) started a joint industrial project to address the growing problem of ‘undetectable’ foreign bodies. SIK had several years of microwave knowledge in-house and was located in Gothenburg, Sweden — one of the world’s real hubs of microwave technology experts. As a result, SIK enjoyed full access to world-class technology companies and specialists, including academia, who could help assess the concept.

The idea of a unique detection technology using microwave sensors soon created great enthusiasm amongst the industry experts linked to the project. In 2003, SIK brought in external investors and Food Radar Systems AB was established as commercial company. The objective was to develop the technology and a system suited to the needs of the industry. In 2007, a prototype of a pipe sensor was tested and, in 2009/2010, the company started to actively market its system towards certain applications.

BABY FOOD TAKING THE INITIATIVE

Food Radar Systems has installed the LOOK100® at several global babyfood producers. It seems predictable that the baby food industry would be the first to adopt this technology.
The end result is an installation that does not interrupt production. Even while production is ongoing, the final connections (power etc.) to the system can be done. It is as close to ‘plug and play’ as you can get when it comes to detection systems. The sensor unit, buffer pipe and rejection unit are installed at the pipe section, and the operator panel is positioned in the vicinity.

A NEW OPTION

The LOOK 100® certainly gives quality assurance managers something extra to think about. What was previously considered an unbridgeable gap in foreign body detection has been closed by Food Radar Systems’ new microwave technology. It seems highly probable that, with the advent of the LOOK100®, manufacturers and consumers alike can look forward to a future with fewer episodes of food contamination.

SEE FOR YOURSELF!

In order to allow manufacturers to see for themselves how the system will work for them, they are able to test it at Food Radar Systems’ pilot plant in Gothenburg, even bringing with them their own product to test. This pilot plant is frequently visited by customers prior to making investment decisions (Figure 7 and 8).

‘PLUG AND PLAY’

One of the great benefits is that the system really doesn’t need any floor space and does not make a footprint. It can be installed somewhere along the normal pipe, high or low at a suitable location somewhere before the filler. High-pressure air for the valve, water and power can all be arranged prior to installation. It is also practical to cut the production pipe at a convenient time before the unit has been delivered and install a temporary pipe section matching the system length. When installation is ready to commence, that section is removed and the unit is in place within 5-10 minutes (Figure 9).

Fig. 9: “The system requires only one metre of a pipe section - there is no footprint”

“...the ability to detect organic faults is another benefit that our customers have difficulty in believing...until they see the system in operation.”

Sven G. Bodell, President, Food Radar Systems AB.

The end result is an installation that does not interrupt production. Even while production is ongoing, the final connections (power etc.) to the system can be done. It is as close to ‘plug and play’ as you can get when it comes to detection systems. The sensor unit, buffer pipe and rejection unit are installed at the pipe section, and the operator panel is positioned in the vicinity.

In addition to the unique capability of detecting wood, plastic, and even insects, the ability to detect organic faults is another benefit that our customers have difficulty in believing...until they see the system in operation.”

Sven G. Bodell, President, Food Radar Systems AB.

The end result is an installation that does not interrupt production. Even while production is ongoing, the final connections (power etc.) to the system can be done. It is as close to ‘plug and play’ as you can get when it comes to detection systems. The sensor unit, buffer pipe and rejection unit are installed at the pipe section, and the operator panel is positioned in the vicinity.

A NEW OPTION

The LOOK 100® certainly gives quality assurance managers something extra to think about. What was previously considered an unbridgeable gap in foreign body detection has been closed by Food Radar Systems’ new microwave technology. It seems highly probable that, with the advent of the LOOK100®, manufacturers and consumers alike can look forward to a future with fewer episodes of food contamination.

SEE FOR YOURSELF!

In order to allow manufacturers to see for themselves how the system will work for them, they are able to test it at Food Radar Systems’ pilot plant in Gothenburg, even bringing with them their own product to test. This pilot plant is frequently visited by customers prior to making investment decisions (Figure 7 and 8).

‘PLUG AND PLAY’

One of the great benefits is that the system really doesn’t need any floor space and does not make a footprint. It can be installed somewhere along the normal pipe, high or low at a suitable location somewhere before the filler. High-pressure air for the valve, water and power can all be arranged prior to installation. It is also practical to cut the production pipe at a convenient time before the unit has been delivered and install a temporary pipe section matching the system length. When installation is ready to commence, that section is removed and the unit is in place within 5-10 minutes (Figure 9).

Fig. 9: “The system requires only one metre of a pipe section - there is no footprint”

“In addition to the unique capability of detecting wood, plastic, and even insects, the ability to detect organic faults is another benefit that our customers have difficulty in believing...until they see the system in operation.”

Sven G. Bodell, President, Food Radar Systems AB.

The end result is an installation that does not interrupt production. Even while production is ongoing, the final connections (power etc.) to the system can be done. It is as close to ‘plug and play’ as you can get when it comes to detection systems. The sensor unit, buffer pipe and rejection unit are installed at the pipe section, and the operator panel is positioned in the vicinity.

A NEW OPTION

The LOOK 100® certainly gives quality assurance managers something extra to think about. What was previously considered an unbridgeable gap in foreign body detection has been closed by Food Radar Systems’ new microwave technology. It seems highly probable that, with the advent of the LOOK100®, manufacturers and consumers alike can look forward to a future with fewer episodes of food contamination.
It is essential to eat a healthy and balanced diet in order to meet the recommended daily vitamin requirement. Vitamins are present in foods and foodstuffs of plant and animal origin. Because the body is unable to synthesize most of these essential organic compounds, so it is vital to ingest the vitamins. Vitamin D is one of the exceptional vitamins which the body is able to synthesize itself, through cutaneous absorption from sunlight. Niacin can also be produced endogenously through the metabolism of tryptophan, an essential amino acid. Vitamins serve to fortify the immune system, enable the body to use other nutrients, and detoxify the body. In addition, they also function as enzymes and reduce the risk of heart attack. Vitamins are crucial for energy production and are involved in dozens of metabolic pathways without being altered themselves. A vitamin deficiency, or hypovitaminosis, can develop under certain unfavorable conditions. The German Nutrition Society (DGE) recommends eating five portions of fruits and vegetables each day for the prevention of vitamin deficiency.

THE HISTORY OF VITAMINS

The word "vitamin" derives from the Latin word "vita" (life) and the biochemical term "amine", referring to the fact that these substances are vital to life on the one hand, and are characterized by a certain chemical structure and nitrogen compound on the other. The name was originally coined in 1910 by the Polish biochemist Casimir Funk, who assumed that all vitamins contained an amino \((\text{NH}_2)\) group. This assumption later proved false, but the name remained. Vitamins are divided into two basic groups: fat-soluble vitamins and water-soluble vitamins. The body is able to store fat-soluble vitamins, which ideally are retained in the body until they are needed. Vitamin storage means that regular intake of the vitamin is not necessary. Under certain conditions, excess amounts of the vitamins are stored in the body, which can result in numerous health problems. Water-soluble vitamins, on the other hand, generally are not stored in the body, but are eliminated soon after consumption. Consequently, a regular intake of these vitamins is necessary. Vitamin B12 is the only water-soluble vitamin stored in the body, specifically, in the liver. A total of 13 vitamins have been discovered to date. Four of the known vitamins are fat-soluble (vitamins A, D, E and K), and the other nine are water-soluble (B vitamins, vitamin C). The biological activity of vitamins varies depending on the chemical structure. The recommended dietary intake of vitamins is expressed in International Units (IU) or as units of weight. Some vitamins occur in very small concentrations in foods. Because these trace vitamins are extremely sensitive to light and heat and are unstable when exposed to oxygen, they have special manufacturing and storage requirements.

It was not known until relatively recently that vitamins are essential for the human diet. Most of the vitamins known today were discovered between 1925 and 1940. Fruits, vegetables, liver, kidney and yeast have been identified as important dietary sources of vitamins.

VITAMIN DEFICIENCIES TODAY?

True vitamin deficiencies and the associated diseases of the past rarely occur in Germany and are now detected only in individuals of certain risk groups. Elderly individuals fall into this category due to the fact that the ability to absorb vitamins generally decreases with age. Vitamin deficiencies in the elderly are most commonly triggered...
by a lack of appetite and associated dietary deficiencies, but may also be caused by the impaired absorption of vitamins from the intestine. Pregnant women are also at risk of vitamin deficiency. Women in this risk group are advised to take folic acid supplements, particularly before and during the first trimester of pregnancy, in order to reduce the risk of neural tube defects and brain defects during embryo development. The Federal Institute of Risk Assessment (BfR) in Germany recommends taking 400 micrograms of folic acid per day to supplement the normal dietary intake of folate in food, starting at least 4 weeks before the beginning of pregnancy. The German Nutrition Society even recommends 600 μg of supplementary folic acid per day during pregnancy. The risk of folic acid deficiency can be reduced by fortifying flour with folic acid. The USA has fortified flour, cereal, rice and noodle products with folic acid (1.4 mg folic acid per kilogram) since January 1, 1998, and the same rules apply in Canada, Hungary, Chile and Switzerland also subscribe to the practice of flour fortification (3 mg folic acid per kilogram flour). Folic acid fortification has also been practiced in Australia since 2009, where health authorities prescribe 1.35 mg folic acid per kilogram of flour. In Germany, folic acid is currently used in a wide range of concentrations to fortify a number of different food products. Fortified products most commonly include foods and beverages such as multivitamin drinks, milk products, breakfast cereals, bread mixes, and salt. However, public health authorities in Germany did not adopt measures for folic acid fortification of flour based on the grounds that this would pose a potential risk of exceeding the tolerable upper intake level (UL) for folic acid.

For preventive purposes, foods and beverages are often fortified with specific vitamins in order to compensate for actual and assumed deficiencies. There are three different ways to manufacture vitamins: by chemical synthesis, by fermentation, and by isolation from materials of plant or animal origin. Most vitamins sold today are manufactured by chemical synthesis. Chemical stability during the different manufacturing processes and the chemical composition of vitamin premixes are important aspects to consider in vitamin manufacturing. Spray drying is clearly the most popular method of manufacturing vitamin products today. However, what are the best methods to detect and measure the presence of vitamins in these products? It is important to check the accuracy of vitamin concentrations declared on the product labels.

VITAMIN ANALYSIS

It is difficult to determine the vitamin content of a product using conventional analytical methods. This is particularly true for folic acid, vitamin B12 and biotin which are
present in very low concentrations in foods. The ability of high-pressure liquid chromatography (HPLC) and other conventional physicochemical methods to detect and measure vitamin concentrations is also limited. Procedures using immunoaffinity columns (IAC) can eliminate these problems because the vitamin present in the sample is purified and separated from interfering substances before analysis. The immunoaffinity chromatography is based on a specific reaction between a highly specific antibody and the corresponding antigen. After the sample extract has been loaded on an immunoaffinity column, any unbound components are removed by washing the column. Finally, the vitamin bound to the antibody column is eluted using an appropriate eluent, and is determined by HPLC. R-Biopharm supplies EASI-EXTRACT® immunoaffinity columns for vitamin B12, folic acid and biotin.

**ADVANTAGES OF IMMUNOAFFINITY COLUMNS:**
- Isolation and concentration of the vitamin in the sample
- Pigments and interfering components are washed out of the column
- Improved sensitivity
- Lower maintenance costs of HPLC
- The tests have been validated using reference materials from the National Institute of Standards and Technology (NIST) and the Institute for Reference Materials and Measurements (IRMM) in Belgium.

As shown by the data in Table 1, there was good agreement between the results of immunoaffinity chromatography with those of the traditional microbiology-based assay (MBA) and the expected vitamin content. This demonstrates the suitability of EASI-EXTRACT® immunoaffinity columns for the detection and measurement of vitamins in different foods and confirms their high sensitivity.

**MICROBIOLOGY-BASED ASSAYS**

Microbiology-based assays can also be used for the analysis of individual vitamins. In these assays, a microorganism essential to the growth of the target vitamin is added to a culture medium containing the respective vitamin standard or test sample. After incubation in an incubator, the culture medium, which was initially clear, turns cloudy if the target vitamin is present. The microorganisms in the culture medium multiply at a rate dependent on the vitamin concentration, and the resulting turbidity can be determined by photometric methods. The unknown vitamin content of the sample can be determined by comparing the turbidity of the sample with that of a standard curve.

---

**Fig. 2:** VitaFast® Folic Acid test kit, which is certified by the AOAC Research Institute
generated using a series of standards. R-Biopharm supplies microbiology-based assays designed for this purpose under the trade name VitaFast®. VitaFast® test kits come with microtiter plates, the wells of which are coated with specific microorganisms that metabolize the target vitamin. This dispenses with the need for the time-consuming process of preparing and maintaining microorganism cultures and suspensions. The number of microorganisms in the wells is set and adapted according to the specific requirements for the respective target vitamin.

The first step of the test procedure is to add the assay medium as well as incremental concentrations of the target vitamin itself or of the sample extract to the wells of the microtiter plate. After the plates have been incubated in an incubator, turbidity is measured and analyzed using a microtiter plate photometer.

Results of the analysis of vitamins in manufactured and stored yogurt and yogurt products are shown in Table 2. It was determined that the vitamin content in the fruit preparation remained stable after 3 weeks of storage. Regarding the product containing a mixture of plain yogurt and a fruit preparation, there was good agreement between the measured content determined using VitaFast® test kits and the estimated vitamin content, which also remained stable after 5 weeks of storage at 4 to 8 °C. In addition to yogurt and yogurt products, other food, feed and pharmaceutical products were also analyzed using the VitaFast® test kits as microbiology-based assays. VitaFast® test kits have been tested and validated with reference materials. These microbiology-based assays were also subjected to testing in official interlaboratory ring trials.

**ADVANTAGES OF THE VITAFAST® MICROBIOLOGY-BASED ASSAYS:**

- Each kit contains sufficient reagents for 96 tests (triplicate testing is possible)
- It is based on official reference methods: Section 64 of German Food and Feed Code (LFGB), AOAC, etc.
- AOAC-RI certification has been granted for some VitaFast® tests
- Washing steps are not required
- High precision and accuracy
- Coefficient of variation is less than 10 percent
- Recovery rates from real matrices range from 95 to 105 %
- They provide the capability to determine the added vitamin content or total vitamin content of water-soluble B vitamins, depending on the method of sample preparation
- The tests are run using sterile, disposable materials
- Uniform test procedures are used across the VitaFast® product line
- Test results are available within 44 to 48 hours (20 to 24 h), depending on the target vitamin

**ELISA**

Enzyme immunoassay (ELISA) is another suitable method for vitamin analysis. ELISA tests employ a specific antibody that binds the target antigen or, in this case, the target vitamin. An enzyme is used to label the antibody or antigen beforehand. The reaction catalyzed by the enzyme provides proof of the presence of the antigen in the sample. The reaction product is identified by a change in color. RIDASCREEN®FAST Vitamin B12, RIDASCREEN®FAST Folic Acid, and RIDASCREEN® Biotin were introduced several years ago. Because these competitive enzyme immunoassays allow for the rapid and simple determination of added vitamins, they are suitable for use in process control applications.

**Table 3** shows an overview of the vitamin test kits available in our product portfolio.

**CONCLUSION:**

With its wide range of test systems for vitamin analysis, R-Biopharm provides individual solutions to the diverse analytical challenges encountered by its customers.

R-Biopharm AG
64297 Darmstadt – Germany
www.r-biopharm.de
In our modern day and age the beverage industry, and the dairy and fruit juice sectors in particular, would be inconceivable without aseptic filling – not least because this filling method contains a whole host of benefits. Aseptic filling of beverages in plastic bottles, for instance, retains the natural flavor and aroma of each and every drink as well as the important vitamins these contain. Another major advantage of aseptic filling is the lack of preservatives – creating an economic advantage for the beverage industry and an additional health aspect welcomed by consumers.

In the field of aseptic bottling, prior to the actual filling process more and more plants are using what is known as dry sterilization. This principle has long been in successful use in the series of classic Innosept Asbofill machines; in the next generation, namely the Innosept Asbofill ABF 611 and the Innosept Asbofill ABF 711, this has been improved even further. Compared to the machinery manufactured to date, this new family of aseptic linear fillers has many optimized features which give the user an entire spectrum of extra benefits.

The major advantage of the dry sterilization method is that all kinds of plastic bottle and closure can be reliably sterilized. In the Innosept Asbofill machine series, where dry sterilization comes into play, all surfaces are sprayed completely evenly, regardless of the size and shape of the bottles being processed. This ensures safe sterilization, even with ribbed, embossed, and square bottles and with bottles with very structured surfaces.

Hydrogen peroxide (H₂O₂) is used in the dry sterilization process, where H₂O₂ aerosol is sprayed into the plastic bottles and onto the closures. The condensation this forms on the bottle and closure surfaces is dried off with sterile hot air. The result is dry and sterile bottle and closure surfaces. In this procedure there is no need to dispose of any peracetic acid, the sterilization medium used in wet sterilization. There is also no water used, which means that no wastewater is generated and that dry sterilization saves on one of our most precious future resources.

The size of the required sterile area where dry sterilization is applied is greatly reduced in comparison to the classical wet aseptic process. Instead of the usual 65 m³, less than 15 m³ of space is taken up by the dry sterilization unit where the rotary design principle is used. Where linear machines are deployed for dry sterilization, the size of the sterile area drops even further. This is one definitive advantage of linear technology, as seen in the next generation of Innosept Asbofill fillers. The ABF 711, for example, has a sterile area measuring just 1.5 m³; the ABF 611 requires a mere 0.9 m³ of sterile area. As only the bottle neck enters the Innosept Asbofill sterile zone, bottle exterior sterilization otherwise needed is superfluous here.

The much reduced sterile area still gives the utmost aseptic safety. This safety is increased even further by the plastic bottles in the Innosept Asbofill ABF being conveyed throughout the entire machine in their own holders. No switching from one carousel to another is required, as is the case in the rotary system, thus eliminating the necessity for any mechanical intervention in the aseptic zone. All conceivable conversion and replacement measures take place in the unsterile area outside the aseptic zone. Another advantage of the Innosept Asbofill machines is that there is no need for intermediate sterilization. Fully geared towards the product to be filled, the recommended production cycle is between 48 and 72 hours.

Aseptic linear filling machines generally cover a low to medium output range, with aseptic rotary machines catering for the higher capacities. The Innosept Asbofill ABF 611 is thus capable of processing up to 12,000 plastic bottles an hour and is specifically designed for the low output of up to 24,000 plastic bottles/h.
capacity range of 100 to 750 ml. The bottles may be up to 85 mm in diameter and up to 240 mm in height. The Innosept Asbofill ABF 711 can also fill up to 12,000 plastic bottles per hour, its standard processing sizes being bottles holding 0.25 to 2 liters with a maximum diameter of 120 mm and a maximum height of 350 mm. If required, the range of plastic bottles to be processed by the machines can also be extended to include special sizes not included in the above stipulations.

Both machines are also available in the new twin version, increasing the filling volume to 24,000 bottles an hour. This twin concept combines the use of proven base technology with a reduction in the number of cost-intensive components, while boosting outputs within a minimum amount of space.

POSITIVELY PREDESTINED FOR THE DAIRY AND FRUIT JUICE SECTORS

Innosept Asbofill linear fillers are designed to fill still beverages into plastic bottles. Whether milk, yogurt drinks, fruit juices, or fruit juice drinks – all are doable. Pulpy beverages containing up to 20 % pulp and with fiber lengths of up to 18 mm can also be processed without any trouble at all. In the future a machine variant will also become available which permits products that contain chunks to be filled, thus further expanding the area of use for this series of fillers. The Innosept Asbofill ABF 611 and the Innosept Asbofill ABF 711 are also particularly suitable for filling pharmaceuticals, provided they are liquid products for enteral feeding or health drinks, for example.

CONSTANCY OF THE NECK RING THE SOLE PREREQUISITE

Innosept Asbofill machines allow enormous flexibility in the design of bottle used, allowing customers to build up a broad spectrum of processible products. The only limitation is that the neck ring must remain constant; the shape of the bottle can vary as long as the maximum dimensions are not exceeded. Bottle designers are thus free to exercise their powers of imagination as they see fit, creating any number of quadratic, rectangular, or oval bottles which are all fully workable. A high level of machine efficiency is ensured even if the shape and volume of the bottles frequently changes.

RELIABLE BOTTLE INFEED USING AN AIR CONVEYOR

The plastic bottles processed by Innosept Asbofill technology are fed into the machinery by an air conveyor. This ensures that bottles are conveyed reliably, gently, and under the best possible hygienic conditions using neck ring handling. The air conveyor is split into sections, each of which has a frequency-controlled blower that supplies the air channel and controls the conveying speed of the bottles by means of various volume flows.

Innosept Asbofill machines have a standardized interface for connecting up the air conveyor, with the air conveyor continued further into the machine. The transfer point between the air conveyor and the filler is always identical and independent of variations in installation.

CYCLIC DISCHARGE TO THE CELL CARRIER BAR

Bottles are fed into both the Innosept Asbofill ABF 611 and the Innosept Asbofill ABF 711 outside the aseptic zone. A chain moves past the air conveyor, at the end of which is a curve that ensures that the bottles are inserted in holders specially integrated into the chain for this purpose. From these chain holders grippers remove eight bottles per cycle on the Innosept Asbofill ABF 611 and ten bottles per cycle on the Innosept Asbofill ABF 711 and position them in a cell carrier bar. Holding the plastic bottles by their neck rings, this cell carrier bar transports them through all processing stages of the machine. The first station scans the cell carrier bar to see if each position contains a plastic bottle. Should this prove not to be the case, this is immediately registered and the vacant position excluded from the ensuing filling and capping process.

Fig. 1: With its new generation of aseptic linear fillers, KHS offers the very system the industry demands. Maximum safety goes hand in hand with flexibility with regard to not only the product itself but also to the plastic bottles to be filled with said product and the closures used on these bottles.
FILLING TECHNOLOGY

RESIDUE-FREE STERILIZATION PROCESS

Following this inspection the plastic bottles are transferred to the sterilization zone, where H₂O₂ aerosol is applied to each plastic bottle through a lance positioned in the plastic bottle and ending just below the bottle neck. This special method of aerosol spraying ensures that all areas of the plastic bottle are treated with H₂O₂. A two-channel system is formed in the bottle neck; while the H₂O₂ aerosol is sprayed into the center, the gas this displaces escapes up the sides of the lance and out of the bottle. To ensure the greatest possible safety, the aforementioned H₂O₂ is supplied in cycles at two stations. Two further cycles in the sterilization zone are reserved to allow the H₂O₂ to take effect. Within four cycles the bottles are then dried with hot air in an area separated by a partition until they are residue free.

CLEARLY SEPARATED PROCESSES

Once the plastic bottles have run through the sterilization process, they are conveyed to the filling station. There is also a partition in the machines between the sterilization and filling processes, which take place in different housings, clearly separating these aseptic zone areas from one another. This partition extends up to the cell carrier bar and only contains openings for the necks of the individual plastic bottles.

DIRECTED STERILE AIR CONTROL

Sterile air is blown permanently into the aseptic zone area and discharged downward by what’s known as a positive displacement current via a perforated plate which separates off the aseptic zone. From there it enters the machine area where it is specifically extracted. The actual sterile air preparation is located in a valve manifold installed on the machine, which also provides all other media required for the production process. Blowers convey the air to the valve manifold that includes sterile candle filters. Candle filters have the advantage that they can be sterilized with steam prior to production, providing the maximum process safety.

NON-CONTACT FILLING PROCESS FULLY GEARED TOWARDS THE PRODUCT AND PLASTIC BOTTLE TYPE

The filling process in the Innosept Asbofill machine series is carried out by two-stage, free-flow filling valves. During the filling process there is absolutely no contact between the plastic bottle and the filling valve in full accordance with the stipulations of aseptic safety. The specific configurations of the filling process are dictated by the product to be filled and the type of plastic bottle it is to be filled in. A push of a button at the operator terminal retrieves the relevant programmed settings. Volumetric filling of the plastic bottles by means of magnetic inductive flowmetering ensures exact fill levels. Overfilling is not necessary; product loss is avoided. If a changeover to a new plastic bottle size is planned, a press of a button on the operator terminal is all that’s required to make the necessary changes to the filling volume.

SAFE CLEANING PROCESS FOR FILLING VALVES AND THE ASEPTIC AREA

A cleaning adapter is located within the filling station which closes the filling valves for cleaning, ensuring continuous circulation during valve cleaning. The standard procedure on an Innosept Asbofill machine is to clean the filling valves in both directions, with the cleaning flow being reversed within the machine. The entire aseptic zone is always sanitized with foam and/or gel prior to production. This process ensures that each individual place inside the aseptic area is reliably reached. The cleaning process also treats materials extremely gently.

MANY POSSIBLE, RETROFITTABLE OPTIONS

In both the Innosept Asbofill ABF 611 and the Innosept Asbofill ABF 711 pulp nozzles can be integrated into the filling valves if required. This option is particularly useful where fruit juices with a high pulp content are to be processed. Depending on the products to be filled, other useful options are nitrogen flushing before and flushing the head space of the plastic bottles with nitrogen after the filling process. This treatment, which further reduces the amount of oxygen in the filled bottle and thus in the beverage itself, has obvious advantages, particularly for beverages that are sensitive to oxygen, such as those containing vitamin C.

Another possible option is to place a drop of liquid nitrogen in the head space of the filled plastic bottles. This method, which displaces the oxygen in the bottle head space, is especially prudent where very lightweight plastic bottles are deployed. Adding liquid nitrogen causes the pressure inside the plastic bottle to build up, thus giving the bottle greater stability and making it easier to process down the line, such as in the labeling area, during palletizing, and also when being transported. Like the other available options, such as double-filter units in place of single-filter units in the valve manifolds and coding plastic bottles during the production process, those mentioned above can also be integrated into Innosept Asbofill machines at a later stage. All this gives beverage bottlers an ideal safeguard for the future.
APPLICATION AND CLOSURE PROCESSES FOR PLASTIC CAPS AND SPORTS CAPS KEPT SEPARATE

If plastic caps are to be applied to the bottles, these first travel from the sorter into a feed chute. Aligned in the same manner and fully coordinated with the number of plastic bottles conveyed on each cell carrier bar, the caps are then distributed across eight lanes in the Innosept Asbofill ABF 611 and across ten lanes in the Innosept Asbofill ABF 711. The caps are sterilized in exactly the same manner as the plastic bottles. H$_2$O$_2$ is sprayed onto the caps, allowed to react and then dry. The application of screw caps to plastic bottles has been designed down to the last detail. In a first step, a suction unit on the Innosept Asbofill machine places the plastic caps on the bottles, thus largely protecting the filled product against external influences. The capper housing is divided into two chambers, the aseptic zones of which are separated by partitions. The next stage in the process, namely screwing the plastic caps tight, is thus carried out in a separate sterile chamber. The key advantage here is that the rotary capping motion, which usually poses a greater risk in an aseptic zone, takes place in a separate sterile zone where the bottles are as good as sealed. Again, maximum aseptic safety is the motto here. Besides classic plastic screw caps, the Innosept Asbofill ABF 611 and Innosept Asbofill ABF 711 can also process sports caps. If required, this option can be retrofitted at any stage. We should mention here that if this option is added, it is possible to switch from flat cap to sports cap and back again at any time without the need for any changeover work. Any necessary alternative settings are made automatically.

FULLY AUTOMATIC SEALING PROCESS

The sealing process always takes place in a housing that is separate from the filling process. Consequently, the plastic bottles again pass through a partition after filling. The plastic bottle sealing process is fully automatic on both the Innosept Asbofill ABF 611 and the Innosept Asbofill ABF 711; it is therefore no longer necessary to have operators place seals in hoppers provided for this purpose. This has the advantage that aseptic safety is increased even further, while operator errors in the handling of seal plates that might result in malfunctions are prevented. A container is placed in the machine which is full of the aluminum seals to be applied. This container also acts as packaging for deliveries of seal plates. Grippers remove the seals from this container and distribute them among the individual hoppers. The seals are then taken from the hoppers by suction. The underlying side of each removed seal is sprayed with H$_2$O$_2$ to sterilize it and then placed in a drum with the side facing the product once the seal has been attached on the outside of the drum. The drum then undergoes a number of processing stages in coordination with the machine cycle configured for the plastic bottles. During the first cycle H$_2$O$_2$ aerosol is sprayed onto the seal, with another cycle reserved for the reaction time of the H$_2$O$_2$ aerosol. This is one cycle less than required for the sterilization of the plastic bottles, yet this reaction time is sufficient, as H$_2$O$_2$ aerosol can be applied to an aluminum seal at a much higher temperature than is possible during plastic bottle sterilization. This shorter reaction time means that the H$_2$O$_2$ on the seal dries within just two cycles. The seal is cycled further in the drum until it reaches its discharge position, where it is removed from the seal plate, and pressed and immediately sealed onto the designated plastic bottle. The major plus of immediate sealing is that the utmost aseptic safety is again ensured; the time during which the filled plastic bottle is open is deliberately kept as brief as possible.

Fig. 2: In the new generation of Innosept Asbofill machines a small sterile area means maximum aseptic safety. The Innosept Asbofill ABF 711, for example, has a sterile area of just 1.5 m$^3$, with that of the Innosept Asbofill ABF 611 measuring only 0.9 m$^3$ (The shading in blue denotes the sterile area).
CLOSURE INSPECTION AND LEAKAGE CHECK

Downstream of the capper unit an optical closure inspection is performed. After this, the bottles are clocked to a position where a gripper system removes them from the cell carrier bar and places them on the conveyor. After the aseptic filler there is a leakage check which is obligatory for an aseptic filling line.

MORE SIMPLICITY AT MANY LEVELS

Compared to the previous generation of machines, in the Innosept Asbofill ABF 611 and the Innosept Asbofill ABF 711 the sterilization zone has been simplified by reducing the number of components. For example, only one single servomotor is used for all drying lances, resulting in simplified maintenance and a cut in operating costs. Another improvement relates to machine accessibility, with the cable routing having been optimized even further and the H₂O₂ treatment unit and other devices repositioned. With regard to the measuring instruments, only components of the newest generation are earmarked for use in the Innosept Asbofill ABF 611 and Innosept Asbofill ABF 711.

TWIN CONCEPT AVAILABLE ON REQUEST

Yet another benefit of the new generation of Innosept Asbofill machines, i.e. the ABF 611 and the ABF 711, is that the original machine capacity can be easily doubled using the twin concept. This has the advantage that there is a clear reduction in cost compared to the investment in two individual machines, the reason being that the chief components can be shared by a twin machine. For example, if the Innosept Asbofill is twinned, only one valve manifold, one bottle conveyor downstream of the machines, one product and steam supply, one controller, one operator terminal, and one machine cladding are required. Using proven technology, this twin concept gives customers a higher machine output within a minimum amount of space while reducing investment costs. Moreover, the twin machine also allows users to keep a smaller stock of spare parts as parts are identical, again lowering company outgoings. What’s more, as opposed to using two separate machines, the twin concept is much more compact and thus takes up less space.

TRAINING INCLUDED

In an aseptic world, each and every individual must constantly adhere to the rules. The best machine equipment is useless if essential rules of conduct are disregarded. In order to hone this awareness, on investing in Innosept Asbofill technology all those involved in line operations are specifically trained to this end. The program covers aspects from the basics of aseptic technology through care and maintenance measures to training on the operator terminal.

ALL FROM ONE SOURCE – AN IMPORTANT PRINCIPLE OF ASEPTIC OPERATION

Providing everything from one source is another important principle of aseptic operation. Interface problems are ruled out right from the start. KHS thus not only provides expert knowledge on aseptic systems in general but also throughout the entire aseptic process itself. This includes a complete beverage processing package, from sugar treatment through beverage production, product pasteurizing and sterilizing to CIP sanitizing. After all, it’s important that process engineering equipment fully tailored to the process and designed entirely in compliance with aseptic criteria is always installed upstream of the actual aseptic filling technology.

PRECISELY TAILORED TO THE DEMANDS OF THE INDUSTRY

All told, with its new generation of aseptic linear fillers, KHS offers the very system the industry demands. Maximum safety goes hand in hand with flexibility with regard to not only the product itself but also to the plastic bottles to be filled with said product and the closures used on these bottles. Fast, simple changeovers of product and bottle type satisfy a major requirement, namely to be able to fill an ever greater variety of products in small batches on the same line without loss of effectiveness and with the maximum aseptic safety.

Thanks to a comprehensive package of options, which can also be integrated into Innosept Asbofill machines at a later stage, this is a machine generation that is perfectly equipped for both the present and the future.

AUTHORS

Thomas Niehr
Aseptic Filling Technology Manager

Paul-Uwe Winterhoff
Design Engineering Manager,
Aseptic Filling Technology
KHS GmbH
D-55543 Bad Kreuznach - Germany

www.khs.de
**THE GLOBAL FRUIT JUICE INDUSTRY –**

**Business Year 2011**

"For many of us it has been quite a challenging year in this economic environment. Commodity prices have escalated substantially as well as costs of operation resulting in increased prices in the marketplace to the consumers we depend on to buy our products", Don Sporn, new IFU President.

2011 has been an interesting year for IFU as well. At the annual meeting held in Bonita Springs, Florida we welcomed five new members from the countries of Italy, Japan, Mexico, Monaco and Uruguay.

Recently in October, IFU sponsored a Workshop during CIBUS TEC in Parma, Italy combined with meetings of the Executive Committee and the Scientific and Technical Commission. The Workshop, “Juice As An Important Part In Other Products” was well attended and provided an opportunity for attendees to visit CIBUSTEC as well.

**Activities and Information from Worldwide IFU membership**

**Fruit Juice Australia – A Division of the Australian Beverages Council Ltd.**

A container deposit scheme has been run since 1977 in just one Australian state, South Australia (SA). Deposits are funded by beverage manufacturers and the scheme is administered solely by the SA Environmental Protection Authority.

The aims of the scheme were to reduce litter from beverage packaging, including fruit juice containers, and to promote resource recovery for which citizens can collect a deposit on delivery to designated depots.

Labelling of this sort was necessary for products sold in SA only, however in early 2011 a second region, Northern Territory (NT), focused on adopting these same aims. The NT scheme is due to be fully implemented in January 2012. The NT is administered slightly differently to the SA based system, with a combination of resources from state based and state coordinated databases; paired with private consortiums committed to documented waste management principles to coordinate deposits and recycling.

Some discussion has arisen relating to a national scheme, which has not yet been realised, and more recently, a program for Western Australia. Major challenges for manufacturers include administration relating to registration of labelling and approvals on separate databases in each state. This is also an important consideration for trade of imported products, and seasonal labels, including promotional labelling that requires further approval prior to sale.

The Harvest 2011 and fruit quality have been adversely affected by changes in weather patterns in Australia throughout 2011. Generally, the weather has been wet throughout, in particular featuring floods through the East and cyclonic activity in the North. In early 2011, banana and mango crops in the north-east of the country were severely impacted by cyclones causing manufacturers to look overseas to replace their stock and maintain accounts. Further cyclones in the north are expected in the coming season. Floods in Victoria resulted in crop losses of tomatoes. Local tomato paste suppliers similarly looked offshore to supply the market. In areas not flooded, high levels of humidity and rain led harvest being downgraded. Notably, the red grape crop was impacted greatly due to mould in many of the grape growing regions of Australia. White grape was also impacted with production vastly decreased on the previous years’ crop. Apples have been increasingly difficult to source for juice manufacture. This has resulted from a variety of factors, including high demand from a fresh juice market, an increasing demand for inputs for local apple cider production and yet again adverse weather events. Severe hail in one of Australia’s main apple-growing districts, Batlow has substantially impacted growth from spring blossom (September) and harvested from late summer through to late autumn (February - May). Australians will however enjoy orange juice over summer, with a huge Valencia orange crop currently being processed.

**BRAZIL – Brazilian Association of Citrus Exporters CitrusBR**

The challenges of orange juice – Drop in worldwide consumption and high production costs are barriers to OJ production.

In few products does Brazil enjoy such a strong leadership as orange juice. Accounting for 50% of world production of this beverage, Brazil exports 98% of what it produces and achieves almost 85% of global market share. But the numbers that demonstrate the strength of this sector also bring concern. Research conducted by the Brazilian Association of Citrus Exporters (CitrusBR), with data from Tetra Pak and Euromonitor, indicate that the world has been drinking less orange juice in recent years. According to the report, which covers the years 2003 to 2010, there has been a reduction of 127 metric tons of orange juice consumption. To have an idea, this is equivalent to the total volume consumed by Canada in 2010. The decrease is mainly due to the growing competition with other beverages such as bottled waters, energy drinks, sports drinks, and an arsenal of new beverages that vie for consumer preference on retail shelves. Making orange juice an attractive and competitive product vis-à-vis these new beverages is one of the industry’s major challenges. Research shows that orange juice has an old fashioned image,
still limited to breakfast, with little appeal to the young public. Since the beginning of the year, CitrusBR has been implementing a campaign called “I Feel Orange,” a global action focusing on U.S. and European markets aimed at rejuvenating and modernizing orange juice’s image. In order to do so, the initiative is focused on new social networks, using animations, videos, blogs, and a portal to communicate and interact with the online generation. Besides the drop in worldwide consumption of orange juice, another challenge Brazil’s orange juice is the high cost of production, which has increased significantly in recent years. A study by Brazilian consulting firm Markestrat shows that the weak dollar, coupled with rising costs throughout the production chain, have made the average cost of processing oranges rise 224% in the period from 2003 to 2010, from USD 347.54 to USD 534.28 per metric ton of FCOJ. According to the survey, the average operating costs of orange production in industry-owned orange groves, representing 40% of its needs, has increased by 202%. The average cost has jumped from USD 1.31 to USD 3.96 per 40.8 - kg box. In these calculations the costs of harvesting and shipping the fruit are included. This aspect of the production chain in Brazil was one of the most widely discussed topics during CitrusBR’s participation at the latest edition of World Juice, which took place in Madrid, Spain, last November. At this event it was reported to the market that as a result of such costs levels, orange juice is expected to become more expensive in the next few years. This is a scenario that makes actions of marketing and product promotion even more important in order for orange juice to remain the most consumed beverage in the world and become increasingly profitable for all links in this chain.

ISRAEL - Citrus Products Board of Israel

In the beginning of 1900, Israel started with citrus plantation. The export of fresh fruit was the main reason for this plantation. Around 1940, the Israeli citrus industry started to produce juices and concentrates. Fruit that did not suit the fresh market was diverted to the industry for processing. All juices produced were canned and mainly exported to the United Kingdom. The brand “Jaffa” became very popular in the United Kingdom. The brand “Jaffa” became very popular in the E.E.C countries (mainly in the United Kingdom). The variety was the famous “Shamouti”. Due to the local development of controlled atmosphere storage condition, citrus fruit was available in Israel all year long and was used for home consumption as fruit’s juice or fresh fruit. Hot pack fruit juices were packed in cans or in glass bottles mainly for export. The development of chilled freshly squeezed slightly pasteurized juices NFC changed the consumption habits of juices in Israel.

The Standards Institution firm of Israel published in 2002 the “Standard 52” for 100% fruit juices, no additives are allowed. As the price of chilled freshly squeezed NFC was relatively high, it developed a 100% juice product, which was made from concentrate to allow a lower price. The demand for chilled freshly squeezed juice is 3 times higher than juices made from concentrate. The main NFC juice flavors are orange juice, white grapefruit and mandarin juice. The new flavor developments are red grape fruit (STAR RUBY), blood orange and sweetie juices. Due to new plantation of pomegranate trees in the past few years, juice producers started the production of a super fruit juice – chilled NFC pomegranate juice.

World Juice Day Meeting

Breakfast meetings on the topic of World Juice Day were held in Sydney and Melbourne. Guest of the IFU, AUN, Directus, Fruit Juice Australia and the Australian Beverages Council, World Juice Day ambassador, Ebru Akdag, Secretary General of MEYED, the Turkish Fruit Juice Association, addressed a group of interested parties representing fruit juice manufacturers, bottlers and media. The talk focused upon embracing the opportunities that a successful national campaign focused on a particular date, World Juice Day 30th May, would provide. Ms Akdag emphasized the importance of marketing and public relations engagement on this exercise. For the success of the 2011 campaign in Turkey, social media focusing on both children and teenagers, incorporating characters developed for the event called ‘Juice Dudes’ were key to success.

The World Juice Day logo has been made available for all to promote WJD which is to be held annually on 30th May.

IFU Workshop 20th October 2011 Parma, Italy

“The increasing consumption of vegetable juices worldwide juice as important part in other products” was an interesting workshop for 65 participants with excellent presentations about: Fruit & Vegetables Smoothies; Fresh Smoothies and Juices with Vegetables; International Standard for Vegetable Juices and Nectars; Stability of Colour and Cloudiness of Carrot Juice; Puree Extraction by Cold Extraction Process; Prickly (Cactus) Pear; Health effects of Blueberry Juice; Claims Regulation in the EU Vegetable Juices; Modern Vegetable Juice Processing; Developing The Juice Market.

More information: www.ifu-fruitjuice.com

Juice World 2012

The 11th International conference “Juice World – 2012” will take place in St.Petersburg from 29th February to 1st March 2012 at Sokos Palace Bridge Hotel.

Joint ISHS IFU event 2012

“10th International Symposium on Vaccinium and Other Superfruits” will take place in MECC Maastricht, The Netherlands, from 17-22 June 2012.
MARKET PRICE REPORT

(Pieces of Information without Liability)

Source: Survey by confructa medien GmbH, from a minimum group of 5 marketers and 5 juice purchasers for each product. Since its first publication in 1991, more than 45 industry partners – manufacturers, traders, processors, bottlers, packers, bankers – have been contributing data.

Your price quotation data, too, is much appreciated. Please direct your contributing input directly to the editorial team: sarah.puderbach@confructa-medien.com

Prices: The price range is calculated for juice or puree of different proveniences, traded in drum or bulk; $/kg = CIF Rotterdam; EUR/kg = DDP

Custom Duties: The range encompasses preferential duties up to 30%

This line represents the development of the mean values (excepted graph 06 orange juice concentrate – future markets)

01: Orange Juice Concentrate
65 °Brix, $/kg

02: Apple Juice Concentrate
70 °Brix, high acidity, EUR/kg

03: Apple Juice Concentrate
70 °Brix, low acidity, EUR/kg

04: Passion Fruit Juice Concentrate
50 °Brix, $/kg

05: Pineapple Juice Concentrate
65 °Brix, $/kg
MARKET PRICE REPORT

18: Guava Puree
pink, 8-10 °Brix, $/kg

19: Mango Puree
15 °Brix, $/kg

20: Peach Puree
EUR/kg

21: Tomato Juice
5-6 °Brix, EUR/l

22: Carrot Juice Concentrate
65 °Brix, EUR/kg

23: Carrot Juice
EUR/l
MARKET PRICE REPORT

24: Red Beet Juice Concentrate
65 °Brix, EUR/kg

25: Red Beet Juice
EUR/l

01: Orange Juice Concentrate
organic, 65 °Brix, $/kg

02: Apple Juice Concentrate
organic, high acidity, 70 °Brix, EUR/kg

03: Carrot Juice
organic, EUR/l

04: Red Beet
organic, EUR/l

January/February 2012
ANUGA FOODTEC 2012 ALSO OFFERS MANY BENEFITS AND OPPORTUNITIES FOR SMALL AND MEDIUM-SIZED SUPPLIERS

Anuga FoodTec offers the international food business an information and purchasing platform that covers the entire spectrum of technology and investment requirements for production in all segments of the food and beverage industries. Thanks to its process-oriented, cross-sector approach, which encompasses all raw ingredients, Anuga FoodTec offers its participants an overview of the technologies used for the entire course of processing at all stages of food and beverage production. Anuga FoodTec, held in Cologne from 27th to 30th March 2012, is once again expected to attract more than 1,200 exhibiting companies from about 40 countries.

The fair’s concept means the event is not dependent on only certain sectors, raw ingredients or sub-processes. This is the key reason why Anuga FoodTec is not only a very interesting event for the industry leaders, who regularly present their products in Cologne. Here, entrepreneurs can be sure to meet the top international decision-makers from the food and beverage industries, as 81 per cent of Anuga FoodTec visitors stated in 2009 that they had sole or shared responsibility for making procurement decisions at their companies. At the same time, the visitor survey revealed that 77 per cent of the trade visitors were managers or technical decision-makers at their respective companies. Anuga FoodTec’s trade visitors are also very international in scope as almost 45 per cent of them come from outside Germany.

Companies that exhibit at Anuga FoodTec 2012 will be able to reach the sector and target groups for which their products are primarily designed with just one exhibition, one trip and one budget. In addition, they will be able to make contact with all other food and beverage production sectors, and do so at the highest international level. The opportunities for contacting previously unidentified groups of customers are especially high at Anuga FoodTec. The trade fair is an ideal contact platform for suppliers and manufactures. After all, there are approximately 6,500 food and beverage producing companies in Germany and almost 20,000 trade visitors from Germany came to be fair in 2009.

Due to its cross-sector approach, Anuga FoodTec opens up additional valuable opportunities especially for small and medium-sized companies. Today’s industry increasingly requires cross-category solutions, which consist of technologies that have proven their worth in one sector and can therefore be transferred to others.

The sixth Anuga FoodTec, will present all the relevant food production themes to the international food business on the basis of the three pillars: Processing, Packaging and Food Safety.

FILTRATION AT ITS PUREST

THE BECOPAD SUCCESS STORY CONTINUES

BEGEROW’s appearance at this year’s Anuga FoodTec trade fair in Cologne will focus on BECOPAD. From 27 to 30 March 2012 visitors to the international exhibition for food and beverage technology will have plenty of opportunity to find out about this innovative filtration medium.

Made of high-purity cellulose, BECOPAD enables filtration without the addition of minerals – and largely without drip or product losses. BEGEROW therefore supplies the only mineral-free depth filter medium that meets all coarse to sterile filtration requirements. The plate and frame filter becomes an enclosed system. The germ retention efficiency meets the strictest standards for microbiological safety; Alicyclobacillus in particular is reliably retained, a bacteria which is particularly problematic in fruit juice production. The use of BECOPAD promises...
an increase in output of at least 20 % and a ca. 50 % reduction in the flushing volume. Prizes for BECOPAD include the renowned CONFRUCTA Award in 2009.

BTEGEROW will also present the well-proven BECO depth filter cartridges that are being used amongst others within the dairy industry for raw milk filtration or germ reducing filtration of skimmed milk.

GEA Westfalia Separator Group GmbH
D-59302 Oelde
Hall 4.1, Aisle A-D, Booth 031-038
www.westfalia-separator.de

Maximum availability and maximum performance
with the new decanter of Westfalia Separator® ecoforce for the beverage industry: gMaster CF 6000

With the new decanter platform Westfalia Separator® ecoforce, the GEA Westfalia Separator Group has combined the demands for maximum availability, high throughput capacities, excellent separating efficiency and the desire for maximum flexibility for the investment and in practical operation. The result: the GEA Westfalia Separator Group is presenting an entire family of a new decanter generation which, as a result of its modular design, can be tailored individually and in an optimum manner to meet the needs of the specific application and if necessary can also be retrofitted. Westfalia Separator® ecoforce is not a, but the decanter of a new generation. Whatever tasks you require it to perform: It adjusts and keeps its promises.

The maximum availability of the systems is assured by the service provided by the original manufacturer which was integrated specifically for this decanter series: Westfalia Separator® directcare. Never before have customer expectations and requested improvements been implemented in optionally available service packages which can be contractually protected more comprehensively than in this case. Whether a full service package for a fixed price or basic modules: Depending on the specific requirements, customers are able to choose a level of service which most closely meets their requirements. This results in a desired high degree of availability combined with planable service costs throughout the entire duration of the contract. The aim of this new concept is to make all technical and economic benefits of the new ecoforce series available in complete form, in a customised manner and throughout the entire life cycle, by ensuring calculable total cost of ownership.

The uniform Westfalia Separator® summationdrive will be installed in all models of the new ecoforce generation. This high-torque drive makes available the optimum differential speed to the process in an optimum manner, thus guaranteeing maximum performance and high separating efficiency. The power is supplied only to all shafts which actually require the power, which means that the drive operates in a particularly energy-efficient manner.

Gear, bearing, lubrication, materials, steels and production of the scrolls and bowls in the ecoforce series are designed to cope with permanently high load levels. Applications which impose considerable demands on material and engineering in particular require robust machines which reliably perform their duties. The new decanter generation has consistently been designed to meet these requirements by means of design innovations. The basic design has been modified: Unlike older generations, all decanters in the ecoforce family are provided with an external gear. This separates the product chamber from the drive chamber. The Westfalia Separator® ecoforce gMaster CF 6000 has been designed specifically for use in the brewing and beverage industry. The multifunction machine guarantees maximum performance combined with high clarifying efficiency and maximum dry matter for the solids – in conjunction with calculable service costs.
AQUA CARPATICA DECIDES FOR BERICAP’S SUPERSHORTY®

They catch the consumer’s eye with a transparent style with black letters: The water bottles of Aqua Carpatica. On the Romanian market they appear since last summer with black caps – the BERICAP’s DoubleSeal™ SuperShorty Eco for 28 mm PCO 1810 neck and as well with a 38 mm closure. “The packaging, black closures 38 mm and the DoubleSeal™ SuperShorty® Eco 28 mm caps are not common and unique in the mineral water business in Romania”, reports Aqua Carpatica. “Bottles and closures go well due to new orders.”

In the Carpathian Mountains (in Vatra Dornei) and in the area of Transylvania (Romania) the bottles get filled. When the bottler Aqua Carpatica was looking for something different to the former 28 mm PCO 1810 neck design, he found it in BERICAP’s SuperShorty® Eco 28 mm for the PCO 1881 neck and in the 38 mm closure. The 38 mm closure range is used for juices, Teas and Isotonics since more than a decade proving excellent closing capabilities for sensitive products.

The BERICAP DoubleSeal™ SuperShorty® range is meanwhile introduced at major CSD and water players in Europe, Asia and Americas. Depending on technical or product requirements the customer can chose his variant out of various DoubleSeal™ SuperShorty® types.

www.bericap.com

BIOBASED PET BOTTLES

Dutch research and technology company Avantium has developed a patented technology YXY to produce 100 % biobased PEF bottles. Currently PET is the most widely used oil-based polyester. Based on the performance of the new PEF material, Avantium believes PEF will become the next-generation biobased polyester. The company announced an agreement with The Coca-Cola Company to further co-develop Avantium’s YXY technology for producing PEF bottles. First milestones include the start-up of an Avantium PEF pilot plant, officially opened on December 8th in Geleen, the Netherlands. It is expected that other large co-development partners will join from early 2012.

PEF can be derived from any biomass feedstock containing carbohydrates, such as sugarcane, agricultural residues, plants and grains. Using YXY as a fast and efficient chemical-catalytic technology, these carbohydrates can be converted into a wide variety of bioplastics. Current process economic estimates indicate that PEF will be a viable alternative to petroleum-based PET. The pilot plant, with a capacity of 40 tons per year, produces PEF material for application development. The collaboration with The Coca-Cola Company is key to secure a smooth transition into the mass production phase of PEF bottles. Avantium is also actively discussing partnerships with other leading brand owners to develop PEF bottles, fibers and film. In the longer term Avantium will license its YXY technology to enable large scale, world-wide production and use of its biobased plastic materials.

www.avantium.com

Offers & Requests

We offer for sale or rent: a complete fruit juice concentrate and NFC plant in Europe ready for operation at a very attractive location.

Further for sale:
2 complete lines for citrus concentrates/tomato concentrate; 1 puree line.
Bucher presses: 5 units HP5000, 2 units HP10000, 1 unit HP6000
3 complete lines for fruit juice concentrate and NFC – barely used.
3 units evaporators (7 t/h, 15 t/h, 27 t/h), 8 units beltpresses, UF plant.
Tetra Pak and Glass filling lines. Barrel filling line, bag-in-box filling line,
Purchase: We constantly buy production lines for fruit juice concentrate, evaporators, Bucher presses, filtration plants, stainless steel tanks.
Phone: +43-7258-7471-0, Fax: +43-7258-7471-11, josef.huemer@kt-net.at

To discuss your advertising or promotion needs, please contact:
Cornelia Hebbe
cornelia.hebbe@fruit-processing.com
fon/fax: +49 2634 9235-16/35

David Cox
Publishers Representative for FRUIT PROCESSING magazine
david@dcmediaservices.co.uk
fon/fax: +44 144 393 1574

January/February 2012
DEEPGRIP® BOTTLES FURTHER WIDEN PET’S POTENTIAL

APPE, the packaging division of LSB and Europe’s leading converter and manufacturer of PET preforms and bottles, is introducing a new technology that will allow the manufacture of large size PET containers with a deep recess for easy handling, providing a radical alternative to traditional extrusion blow moulded HDPE bottles with integrated handles.

Developed in exclusive partnership with Sidel, the new DeepGrip® bottles can be produced in sizes up to 7 litres with a deep recess each side, creating an effective integral handle. End markets include food, dairy, juice, edible oils, motor oils and home and personal care.

APPE says the technology combines enhanced convenience with the many established benefits of PET. In terms of branding and aesthetics, for example, the clarity of the PET enables products to be fully visible while PET's renowned design flexibility will enable the production of bespoke, eye-catching designs for maximum on-shelf impact.

Equally important, the new bottles offer significant sustainability benefits. They offer significant light-weight savings over equivalent HDPE bottles and also offer a lighter weight alternative to clip-on handles or boxed grips. PET containers are also fully recyclable and the DeepGrip® solution ensures a single-material bottle for the recycling stream. A variety of blow-moulded neck finishes is available, providing a re-sealable, leak-free closing mechanism.

www.appepackaging.com

MANAGEMENT CHANGE AT GEA TDS GMBH

Bülent Bayraktar and Hermann Meyer have been appointed as Managing Directors for GEA TDS GmbH as of 1st January 2012. They follow Joachim Haase, who after 12 years of acting as COO for GEA TDS GmbH as well as different responsibilities within the GEA Process Engineering segment, has joined the GEA Heat Exchanger segment as COO. B. Bayraktar has gained extensive experience in process engineering and sales in his career within the GEA Group over the last eleven years. He acted as international project manager, area sales manager and head of the food department at the GEA TDS location Büchen. H. Meyer looks back on a 23-year career in the GEA Group. He started as a project manager, then became the head of the dairy department, was granted power of procurement, and subsequently headed the GEA TDS location in Sarstedt.

www.gea-tds.de

KRONES FlexiFruit – doses fruit chunks as if they’re hand-picked.

www.krones.com

Anuga FoodTec 2012
Cologne, 27 – 30 March
Hall 6.1, Aisle B020/C029

We do more.
ELOPAK BUILDS NEW COATING LINE IN DENMARK

Elopak is to build a new board coating line and a 2,400 m² manufacturing plant extension to its existing converting factory in Aarhus, Denmark. The project will increase reliability and capacities by up to 70,000 tonnes per year of quality board to supply Nordic markets and across Elopak’s European customer base.

"With our main raw material suppliers in nearby Sweden, the location of the new coating line brings us logistic and environmental advantages," says Erik Voet, Elopak’s Director Strategic Purchase & Coating Support. "With the existing converting factory at Aarhus we already have strong foundations with a productive and quality focussed operation and team to support this new venture. By upgrading and investing we will build a platform for future growth, but for now we look forward to supporting our customers and markets with a better board quality and more efficient supply." Construction is due to begin shortly with installation of a new state-of-the-art performance coating machine line planned for early Q3 -2012. Elocoat in Terneuzen, Netherlands will be responsible for production and operation of the new line which is expected to be fully operational by the beginning of Q4 2012.

www.elopak.com

EUROPEAN APPROVAL FOR STEVIA OPENS DOORS FOR PURAC® FIT PLUS

Purac welcomes the recent European Commission’s decision to allow the use of steviol glycosides (stevia) as sweetener in food and beverage applications. The global provider of preservation solutions, lactic acid and lactates expects a further increase of interest in PURAC Fit Plus as a result of this recent ruling.

Today’s consumers are increasingly interested in products that contain few calories, while at the same time they prefer natural ingredients and are not willing to compromise on taste. The recent approval of stevia, a high intensity natural sweetener, will enable the industry to meet these market demands. However, challenges exist when applying stevia to food and beverages.

Alongside its sweetness, stevia’s taste profile includes a lingering bitter or licorice-like aftertaste. PURAC FIT Plus successfully helps to mask the lingering off flavors of intensity sweeteners, such as stevia.

“PURAC FIT Plus is an all natural, ultra pure grade of lactic acid. It is optimized for application in the beverage industry and even has specifications on flavor and odor components” says Hans Schinck, Category Manager at Purac. “The long lasting time and the balanced sour taste make PURAC FIT Plus the perfect building block for stevia masking and acidification of beverages.”

www.purac.com

CELESTIAL SEASONINGS LAUNCHES KOMBUCHA ENERGY SHOTS

New energy shot harnesses kombucha, the popular fermented black tea, to help satisfy the needs of consumers who want to boost their energy naturally

Celestial Seasonings®, a brand of The Hain Celestial Group, Inc., announced the launch of Kombucha Energy Shots – a great-tasting, all-natural shot that fills a void within the energy shot and beverage categories by combining B vitamins and energizing botanicals, like ginseng and caffeine from guarana, with the revitalizing effects of kombucha, a fermented black tea. Kombucha is a fermented black tea that contains naturally occurring enzymes, probiotic cultures and beneficial acids. Kombucha’s known health benefits and the rejuvenated feeling experienced after consuming kombucha has many Americans turning to it for healthy, natural refreshment.

Celestial Seasonings™ Kombucha Energy Shots are made from the brand’s authentic, live, raw kombucha, with an added proprietary blend of energizing ingredients like caffeine from guarana, B vitamins and ginseng. The combination delivers an all-natural energy boost consumers can feel good about – just shake, shoot and feel the energy.

The energy shot category in the U.S. grew 30 percent between 2010 and 2011, according to Mintel reports, demonstrating the demand for products that help consumers feel vibrant and alert throughout their busy days. Packaged in convenient, single-serve 2 fluid ounce bottles, Celestial Seasonings Kombucha Energy Shots are available in three flavor varieties – Citrus, Berry and, for users who desire an added boost, Pomegranate Xtreme which is fortified with additional caffeine from guarana and B vitamins.

www.hain-celestial.com
EU MANDATORY NUTRITION LABELLING RULES BY 13-12-2014

Food companies have five years to implement the mandatory nutrition labelling rules of the European Union’s Food Information to Consumers Regulation published today, said international policy experts EAS. Xavier Lavigne, Food Law Manager at EAS, said that the clock starts ticking towards the five-year deadline for nutrition labelling requirements 20 days after publication, therefore from 13 December 2011.

The regulation requires a mandatory declaration on the label of the so-called ‘Big 7’ – energy, fat, saturated fat, carbohydrates, sugars, protein and salt – by 13 December 2016. It also requires these to be expressed per 100g/100ml and, where appropriate, per portion. While most aspects of the regulation become applicable on 13 December 2014, companies have been given an extended transition period until 13 December 2016 to get in line with nutrition labelling requirements.

“The new food labelling regulation means inevitable changes for companies,” said Mr Lavigne. “The costs of conforming to the mandatory nutrient content rules will most likely hit the smaller food companies more than the larger ones, as many of the larger companies already have some type of nutrition labelling which will simply need to be adapted.”

“However, for those companies wanting to voluntarily label their products with nutrition information any time between 13 December 2014 when the regulation becomes applicable and 13 December 2016 when the transition period for nutrition labelling ends,” he continued, “they will have to comply with the regulations for nutrition declaration, regardless of the given transition period.”

Other aspects of the regulation, with which companies must be compliant by the 13 December 2014 deadline, include new rules on allergen labelling and legibility.

“The regulation introduces a minimum font size of 1.2mm for all mandatory label information, and 0.9mm for products whose packaging has a largest surface of less than 80cm2,” said Mr Lavigne. “For manufacturers it means that knowing how to use the space on certain packages will be key. Already some companies are looking into the creation of understandable symbols in order to gain space and to deal with multilingual challenges. Most companies in the food sector will be pressured into a detailed review of their product packaging in the months and years to come.”

www.eas.eu

Save up to 25 percent costs – Sugar Dissolving Stations

Achieve a remarkable cost reduction by integrating the GEA TDS sugar dissolving station into your plant concept instead of using liquid sugar. In a single batch process, the unit can dissolve a truckload of granulated sugar (approx. 25,000 kg). The sugar is fed directly from the truck into the dissolver. The dissolving water, pre-heated in a GEA TDS tubular heat exchanger, absorbs all sugar dust so no dust escapes into the air. The unpasteurized sugar solution is made available for processing via a filter station, which works in tandem mode for continuous output. The unit supports CIP and features an independent control system for automatic operation.

GEA Process Engineering
GEA TDS GmbH
Voss-Strasse 11/13, 31157 Sarstedt, Germany
Phone +49 5066 990-0, Fax +49 5066 990-891
geatds@geagroup.com
www.gea-tds.com

engineering for a better world
EU BERRY PROJECT – THE SUSTAINABLE IMPROVEMENT OF EUROPEAN BERRY PRODUCTION, QUALITY AND NUTRITIONAL VALUE IN A CHANGING ENVIRONMENT

The main objective of the EUBerry project is to provide the necessary knowledge and tools to facilitate development of high quality, consumer-desirable fresh berry fruits of high nutritional quality optimal for human health at a competitive cost. The further objective is the development and validation of a set of tools to improve competitiveness of European berry production and consumer accessibility to berry fruits. The EUBerry platform will be developed and validated by using strawberry and raspberry and blueberry as model crop species. Additionally, specific critical points related to improvement of berry fruit quality and reduction of production costs will be considered also for currants and blackberries.

THIS PROJECT WILL APPLY THE MOST RECENT TECHNICAL ADVANCES IN:

a) Identifying germplasm of the main berry fruit Genera appropriate for sustainable production throughout the EU, with respect to fruit quality and environmental adaptation and expanding use of modern breeding strategies to accelerate the release of new berry fruit cultivars into the future;
b) Ensuring and expanding high-quality production systems to improve availability of high-quality fresh berries for consumers by focusing on the modern cultivation techniques for berry season extension, on adaptation to different cultivation conditions and systems, as well as to climate change, and on reducing the impact on environment in different European regions;
c) Developing and applying validated methods to control and maintain fruit nutritional quality, improving shelf-life of fresh berries and increasing their availability to consumers;
d) Developing economic studies to verify the impacts of the new technologies in increasing berry economic viability, farmer and consumer attractiveness;
e) Disseminate and communicate the results to research scientists, academia, technical services, growers, market organizations, consumers, food industries, health authorities and regulatory and legislative authorities.

The reliability of the results will be secured by the capacity of the consortium identified for this proposal including a unique integration of 12 major EU institutions in the north, central and south of Europe operating in berry research and providing complementary resources and knowledge in the main areas of berry production and research, and 2 key SMEs with high impact on berry production and markets in EU.

Partners teams will be involved in different tasks planned in 5 Work packages with an interdisciplinary approach from basic to applied research, with also a well defined dissemination and training program. The economic value of the project is of about 4,000,000 Euro with an expected contribution from the European Commission of 3,000,000 Euro.

www.fa-gm.de

PREMIER BEVERAGE GROUP REVEALS NEW PREMIUM ENERGY BEVERAGE PACKAGING

Premier Beverage Group is providing the marketplace with a sneak peek of its dynamic new OSO Energy Beverage premium packaging designs, scheduled to be launched Q1 2012. OSO worked with Monday Collective, a renowned brand design team in New York, on the rebranding of its line. "The design for OSO simply expresses the brand concept – a unique natural energy beverage with exquisite taste, "commented Rochelle Martyn, Co-Founder of Monday Collective. "OSO has a refined visual presence to challenge the loudness of the energy drinks market with an effortless style and sophistication. The bottle structure was custom designed to reflect its premium stature and a simple brand identity presents the name in a pure and interesting way. OSO’s brand design disrupts the visual language of the energy beverage category and has an image that will connect with its style conscious consumer." OSO Beverages has recently completed the designs and production specifications for its glass bottle. Sales of the new products are expected beginning in late Q1 2012. Premier Beverage Group is a holding company that – through its subsidiary, OSO Beverages – owns, develops, markets and distributes high-end premium functional beverages. Premier Beverage Group’s flagship brand, OSO, is a premium energy beverage offered primarily to on-premise accounts. OSO – offered in both regular and sugar-free flavors – is produced in Austria, using only the finest ingredients – resulting in a clear, crisp energy beverage and an up-market consumer experience.

www.premierbeveragegroup.com
SIDEL – SBO COMPACT2

With its latest SBO Compact2, Sidel consolidated a reliable and robust linear blow-molding machine that improves bottle quality.

The SBO Compact2 delivers high quality and performance levels equivalent to those of the SBO Universal blow-molder range. The latest evolution is industrially improved and more robust, while performing even better because of electrical stretching.

GUARANTEED BOTTLE QUALITY THROUGH ELECTRICAL STRETCHING

The final quality of the bottle is determined by the quality of preform stretch-blowing using bi-orientation. Throughout the process, the aim is to ensure maximum process precision and repetitiveness, while obtaining optimal production speed.

To improve the process, Sidel developed a new stretch-blowing system for the preform. Traditionally, the pneumatic process uses hydraulic actuators to drive the vertical movement of the stretching rod. This was replaced by an electrical process by installing a servo-motor and ballscrew assembly.

The new stretching console provides many benefits. It enables constant control of the stretching position and speed, which ensures perfect repetitiveness of the process. The production is also more flexible: it works for a variety of bottle sizes because it is no longer necessary during format changeovers to manually adjust the pre-blowing and blowing start detectors. Finally, the maximum stretching speed increases from 1 m to 1.3 m per second, enabling higher production speeds. These benefits make the SBO Compact2 range a reliable and more flexible solution.

SECURING GREATER FLUIDITY AND OPTIMIZED ERGONOMICS

In addition to electrical stretching, further developments improving reliability include preform feeding and Human Machine Interface (HMI). The machine is more productive due to new, longer orienting rollers that secure preform stability and indeed fluidity. Additional panel functions make the machines more ergonomical for operators. Format change-overs are now easier to carry out because the stretching parameters are managed directly from the HMI and no longer within the machine. These performance improvements are already appreciated by the first customers in South Africa and South America purchasing SBO Compact2 systems. More than ten SBO Compact2 blow-molders are currently being installed.

AVAILABLE FOR STANDARD OR COMPLEX CONTAINERS

Whatever the product, water, carbonated soft drink, juice, dairy product, the SBO Compact2 can blow simple or standard shapes using either PET or other plastics from 0.2 liter to 10 liter containers. It can also manage the blow-molding of complex packaging, such as asymmetric shapes or flat containers, through the preferential heating process with a possible neck orientation. The DeepGrip™ packaging innovation, a box-conforming technology, is equally supported by the SBO Compact2 platform.

As a natural evolution of the SBO Compact range, the new SBO Compact2 linear blow-molders, which include the SBO 4, SBO 4 PH, SBO 3 XL, SBO 3 PH and SBO 2 XXL PH, now run at speeds ranging from 2,400 to 7,200 bottles per hour. All SBO Compact2 blowers systematically benefit from a 100-hour mechanical run-off as a minimum, including one-hour bottle production. This guarantees equipment quality and production efficiency. Machine installation, start up and commissioning can be secured and completed in less than ten days.

As part of these continued improvements, Sidel is working to increase the process capabilities further to manage any type of container, including wide-mouth jars and heat resistant packages.

www.sidel.com
Bucher Unipektin is a leading supplier of plants and components for the production of fruit juice and purees. In addition, we are recognized suppliers of sludge-dewatering plants and vacuum drying units. Recently, we started the supply of solutions for the dairy industry and citrus juice production.

GEA Westfalia Separator Group GmbH is the leading company in the world in the field of mechanical separation. With the efficient processing of liquids and liquid mixtures, this technology ensures considerable added value: more quality of life for mankind.

KosherRegister.com is the No. 1 global online B2B resource for kosher industry. www.kosherregister.com opens the gateway to a 320 billion dollar world market and brings buyers, sellers and all other related parties in the same platform.

Join the BUSINESS CONTACTS section! Just contact us!

It is possible to enter into this section from each issue on.

Print offer 2012: Your business card insertion (85 mm x 55 mm) in 6 consecutive (i.e. one year) print + online issues including logo, address, up to 4 highlighted keywords, description for EUR 720 net.

Cross media offer 2012: Your business card insertion in 6 consecutive (i.e. one year) print + online issues + linked entry in the E-Paper + skyscraper banner (120 x 16 pixel) at www.fruit-processing.com for one year for EUR 1,800 net.

All prices + VAT, if applicable.
With more than 20 years of experience FRUIT PROCESSING is recognized as the voice of the fruit processing industry – globally. The international magazine designed especially for companies of the fruit-based beverage industry and their suppliers delivers comprehensive and insightful analysis of key industry concerns including: Innovative technologies, raw material, product development, hygienic design market price report... and much more.

Stay ahead with www.fruit-processing.com
print and online edition available!
“Global Beverage Markets – No Future for Juices?“
Congress for the International Fruit Juice and Soft Drinks Industry
27 – 28 March 2012 in Cologne/Germany
LOWER COSTS - AND ENVIRONMENTAL IMPACT

Tetra Pak delivers food processing solutions that enable you to reduce costs, boost profitability and lower environmental impact - all in one go.

With our Design for Environment approach we focus on efficient use of energy, water and raw material, reducing impact on climate and fresh water resources. Because we believe that economy and ecology can and should go hand in hand. And we guarantee what we deliver.

You’re welcome to visit us at www.tetrapak.com/environmentalsolutions

Tetra Pak, µ and PROTECTS WHAT’S GOOD are trademarks belonging to the Tetra Pak Group.

International Fruit World 2012
Global Beverage Markets – No Future for Juices?“

CONTENT

Meeting Point Cologne 3
IFW 2012 - Program Day 1 4
IFW 2012 - Program Day 2 6
Speakers 7, 8, 9
Travelling to and Staying in Cologne 10
Discover the Koelnmesse 11
Organiser – Sponsoring Partners 12

Registration Form enclosed
“Global Beverage Markets – No Future for Juices?”, themed like this, the International Fruit World 2012 (IFW) will be again the meeting point of the fruit juice and soft drinks industry.

The IFW 2012 will embrace two days from March 27 – 28, 2012 when everything revolves around markets and trends, innovations and technology, people and opinions.

With the motto “No Future for Juices?” the congress is focussing on topical issues such as market and trends, quality assurance, process technology and the raw material supplying market. Experts from industry and science & research will highlight with their presentations and discussions the strategic importance of sustainable management.

In conjunction with Anuga FoodTec, the international trade fair for food and drink technology, Cologne then will be the meeting point for decision-makers. You can’t afford to miss out on the trends of the future!

IFW 2012 – we will make it worth your while as the line’s experts meet there. We look forward to welcoming you in Cologne!
PROGRAM DAY 1:
27 March, 2012

0900  Welcome Coffee and Registration
Koelnmesse, Entrance East, Congress Centre-East, Congress Saal 1

1000  Opening Address:
Marco Brennich and Lothar Hofmann, confructa medien GmbH

Keynote Session: Market and Trends
1015  The Beverage Innovation Chain for Convenience and Health:
Ingredients, Processing, Technology, Packaging and Benefit Claims
Prof Dr Fred Brouns, Maastricht University, The Netherlands

1100  Global Beverage Markets - No Future for Juices?
Francois Sonneville, Senior Analyst Beverages Industry,
Rabobank International Food & Agribusiness Research,
The Netherlands

1145  Future of 100 % Fruit Juices
Jayant Dixit, President, Pranav International, India

1230  Lunch

1330  DLG Test Fruit Beverages – Live Experience!
Join us for a Guided Tour to the DLG Quality Test
for Fruit Beverages and Soft Drinks

1500  "Solutions in a Challenging Juice Environment"
Kees Cools, Executive Director Fruits & Vegetables,
DöhlerGroup, Germany

1545  Top Trends Juice and Softdrinks
Florian Parthe, Global Account Manager,
Innova Market Insights, The Netherlands

1630  Innovation with new Functional Ingredients –
A natural tomato-based Concentrate as an Example
Thomas Stricker, Market Development Manager
DSM Nutritional Products Europe Ltd., Switzerland

1715  End of Congress Day 1

Workshop Social Media: (conducted in German)
Koelnmesse, Entrance East, Congress Centre-East,
Südliches Sitzungszimmer

1500 –
1700  Social Media - die ungeliebten Stars
Michael Stolzke, digitale zeiten GmbH

1715  Get-Together
WE BRING IDEAS TO LIFE.

Vitamin water, energy shots, still drinks with fruit cells, juicy snacks, fermented beverages, carbonated soft drinks, fruit splashes, beer mixes – the beverage market is constantly evolving. We will support you in realizing your product idea, providing you with one-stop solutions:

- a unique product portfolio
- innovative product applications
- perfect flavours ensured by Sensory & Consumer Science
- quality & food safety with reliable detection agents (DMD®)

Interested? Get in touch with us. We are your partner for flavours and emulsions, natural colours and health ingredients, compounds, fruit preparations, alcoholic and non-alcoholic beverage bases, dairy bases, malt and cereal bases, sweetening systems, fruit and vegetable juices, purees, concentrates and blends.
PROGRAM DAY 2:
28 March, 2012
subject to modification | last up-date: 21-11-2011

0915  Welcome to the Second Congress Day
Koelnmesse, Entrance East, Congress Centre-East, Congress Saal 1

0930  Rheological and Disperse Properties of Juices
Dr Jörg Zacharias, R&D Process Technology,
Krones AG, Germany

1015  Why Dynamic Cellular Disruption™ will Replace
Current Food and Beverage Processes in the Future
Jan Vlok, Green Cell Technologies, South Africa

1100  Communication Break

1115  Preservation of Smoothies by Pulsed Electric Fields -
Development and Commercial Experience
Prof Dr-Ing Stefan Töpfl,
German Institute for Food Technologies (DIL) e.V., Germany

1200  Responsible Production of Raw Material
for the International Fruit Juice Industry
Kerstin Uhlig, Global G.A.P., Germany

1245  Juice and Nectar – Markets Today and in the Future
Ulrich Eisenblätter, Canadean, Great Britain

1330  Lunch-Snack

Visit to the Anuga FoodTec
Fred joined the Global Health & Nutrition Group of Eridania Beghin-Say in 1999, and in 2002 as Research Fellow and Manager Nutritional Sciences Europe Cargill. Today he is program leader “Health Food Innovation Management” at the Nutrition and Toxicology Research Institute, Dep. of Human Biology, Maastricht University, The Netherlands.

Jayant Dixit
Pranav International

Jayant has a BE from Mumbai University and a Masters Degree in Business Management from The Indian Institute of Management, Ahmedabad. Jayant had a corporate career spanning 20 years (from 1977 to 1998) when he worked for some of the leading consulting firms and food & beverage companies in India. Jayant started his business career in 1998 with Pranav International providing marketing & mentoring services to export-oriented fruit processing companies in India. He is an acknowledged expert on the subject of Mango not only from India but also from around the world.

As an executive director of the DöhlerGroup Kees is responsible for the companies newly founded Business Unit Juices & Fruits which requires close and frequent contact with key people in the beverage world, involving raw material producers, beverage packers and consumer & retail marketing specialists. Since 2005 Kees has been a member of the IFU Executive Committee.

Kees Cools
DöhlerGroup

In 2008, Ulrich founded the Panaviz Control GmbH, a consulting company for aspects about packaging and the German packaging laws. In this function Ulrich did a lot of consulting projects for producers, trading companies and other market participants. Ulrich joined Canadean in 2011. He is currently responsible for all market research and consulting projects in Germany and for the integration of the research activities of PM Pack-Marketing.

Ulrich Eisenblätter
Canadean

As an executive director of the DöhlerGroup Kees is responsible for the companies newly founded Business Unit Juices & Fruits which requires close and frequent contact with key people in the beverage world, involving raw material producers, beverage packers and consumer & retail marketing specialists. Since 2005 Kees has been a member of the IFU Executive Committee.
SPEAKERS


Francois Sonneville
Rabobank

Francois is a beverage analyst specialized in the fruit juice and beer sectors. He has been with Rabobank since 1999 and has held various analytical and commercial positions within the group. For the last two years he has been working for the Food- and Agribusiness Research Department, providing analysis and support for Rabobank’s business with beverage clients around the world.

Florian Parthe
Innova Market Insight

Florian decided on a dual study course with the Aldi Company where he learned about all aspects of a successful discounter and completed his studies as BA Business Administration in 2008. After a short interlude in the civilian services, Florian returned to Aldi in May of 2009 as branch manager, a position which he held for two years. Since July 2011 he has been Global Account Manager with Innova Market Insights, mainly responsible for the German-speaking regions.

Thomas Stricker
DSM

Thomas holds an Engineering Degree in Biotechnology as well as an Executive Master of Business Engineering with a focus on Marketing Management. Currently he is Marketing Development Manager with DSM Nutritional Products Europe.

Michael Stolzke
Digitale Zeiten GmbH

Michael, born 1964, Managing Partner of the internet media agency Digitale Zeiten GmbH in Cologne has worked for more than fifteen years with the internet as marketing and communication medium. Publisher of “Mercurio Drinks”, press portal for the beverage trade, and “Tartuffel”, the online magazine for Gastrosothy.
As Krones’ first ever rheologist, Jörg introduced rheological methods as a basis for designing bottling lines. As a result, they are now an important constituent of Krones’ developments. As an expert for rheological and process engineering issues, as well as on the requirements of hygienic design in process technology, he plays an important role in the current developments performed at Krones AG.

Prof Dr Stefan Töpfl
DIL

Since 2009 Stefan is professor at the University of Applied Sciences, Osnabrück. He is teaching in the modules food technology, food process engineering and optimization of production processes.

He is a member of GDL, the Pulsed Power Society as well as the Institute of Food Technologists (IFT). In 2009 he has received the Georg Carl Hahn Research Prize, to acknowledge his research in the area of food processing by pulsed electric fields.

Dr Stefan Töpfl
DIL

Since October 2008 Jan is Research and Development Director for Green Cell Technologies. During this tenure he has developed and patented a process and supporting machinery that allows the extraction of actives or the concentration of foods by up to five times the ability of current processes.

Jan Vlok
Green Cell Technologies

Liquids to Value

GEA Mechanical Equipment
GEA Westfalia Separator Group
Werner-Habig-Straße 1 · 59302 Oelde (Germany)
Phone +49 2522 77-0 · Fax +49 2522 77-2089
www.westfalia-separator.com

As Krones’ first ever rheologist, Jörg introduced rheological methods as a basis for designing bottling lines. As a result, they are now an important constituent of Krones’ developments. As an expert for rheological and process engineering issues, as well as on the requirements of hygienic design in process technology, he plays an important role in the current developments performed at Krones AG.

Trained in Sociology, Politics and Psychology on the Universities of Bremen, Alicante and Hamburg. Focused on development cooperation and empirical studies. She has 4 years practical experience in quantitative and qualitative social research.

Since May 2004 she has worked for EurepGAP/GLOBALGAP where she is responsible for stakeholder liaison.

Kerstin Uhlig
GLOBAL GAP

Efficiency at its Best

Your direct route to 24/7 service: www.westfalia-separator.com/service
TRAVELLING TO AND STAYING IN COLOGNE

Cologne, the experience city on the Rhine, offers a wonderful cultural life, trade fairs, congresses and events. At the same time of the congress International Fruit World 2012 the trade fair Anuga FoodTec will take place in Cologne. We therefore recommend to make your hotel reservation in due time!

Online-Reservation

This is the fastest and most comfortable way to book your hotel room during International Fruit World 2012. Please visit www.hotelzimmerbuchung.com, choose "International Fruit World 2012" to find your individual accommodation in Cologne. The rooms available are shown and you can directly proceed to the online-booking.

Arriving by public transportation

Underground lines 1 and 9: “Bahnhof Deutz” station. The South Entrance is approx. 3 minutes walk from the platform at this station.

Underground lines 3 and 4: “Koelnmesse” station. Line 3 and 4 stop directly at the East Entrance.

Arriving by the Deutsche Bahn (German Railways)

Cologne “Messe/Deutz” train station (distance Koelnmesse approx. 0,3 km). We recommend you to arrive at Cologne “Messe/Deutz” train station. From there the South Entrance is approx. 3 minutes walk away. Cologne Main Station: Distance Koelnmesse approx. 1,5 km.

Arriving by plane

Cologne/Bonn Airport has its own station called “Köln/ Bonn Flughafen” (distance Koelnmesse: approx. 16 km). In the airport, follow the signs to the train platforms. Here you can either take the No. 13 suburban railway (in the direction Horrem) or the Regional Express (in the direction Mönchengladbach) to the station “Köln Messe/Deutz”, located adjacent to the exhibition centre. The trip from the airport takes about 12 minutes.
DISCOVER THE KOELNMESSE

Process Technology: 4.1, 5.1, 5.2, 9, 10.1

Basic food technology; bakery technology; noodle (pasta) technology; meat processing technology; fish processing technology; vegetable and fruit technology; delicatessen and convenience food technology; dairy technology; ice-cream technology; beverage technology; coffee, tea, tobacco technology; aroma, essence and spice technology; ingredients and auxiliary materials

Packaging Technology: 6, 7, 8

Packaging machines; machines/equipment for coding and labelling; packaging materials and packaging; filling technology

Food Safety & Quality Management: 5.2

Automation, data processing, controlling and regulation technology

Know-how from science and practice

Profit-oriented solutions for your processes