

Moving target

With high-tech at the core, companies converged in Cologne to discuss food and beverage packaging. **Dominique Huret** reports

Compact, innovative packaging formats, intelligent automation of production processes across the food and beverage industry, and entirely new concepts and technologies were presented at the Anuga FoodTec show in Cologne, Germany, as it returned after a two-year hiatus.

What was the common denominator? Sustainability, of course, and the need and desire for the sustainable use of natural resources.

German company Pöppelman helped set the tone with its focus on the reduce, reuse, recycle principle and its strength in mono-material packaging and in-mould labelling. Project manager Gerhard Brock called plastics “indispensable as a material for vacuum and modified atmosphere packaging [MAP]”, especially in the meat and convenience food segment, where packing a product safely and hygienically is a prerequisite.

“So, for sure, the industry is working flat-out towards minimising the implementation of fossil raw materials for the production of films, trays and other packaging,” he said. “Take our buckets from the Reduce+ series. They are 100 per cent PP with an innovative lattice structure saving 15-40 per cent of material. They are a great solution for tomatoes, berries and stone fruits. A cherry tomato cup today on the market is usually a PET container weighing 28-35g, without counting the closing dome. With a cardboard top, Pöppelman’s solution is a 21g PP container. Thermoforming allows the lightest packaging and remains the best way to preserve food and allow a circular economy.”

Cross-company initiatives like R-Cycle are on the rise, as businesses (and often competitors) across the value chain jointly drive forward the circular economy for plastics packaging. Machinery manufacturer Multivac has been involved with R-Cycle since the early days and has been working hard at improving its manufacturing processes and enhancing recycling.

At Anuga FoodTec, the company showcased its W500 flow pack machine for pillow packs, which are generally used as primary packaging for food products like meat, sausage, cheese and snacks, but also serve as protection in industrial and pharmaceutical products. According to Multivac, the system has the potential to be used with “sustainable” films and paper-based materials and can be integrated into an automated line. Products with a maximum width of 20cm and a height of 12cm can be packed with or without a tray.

Features include independent roller speed settings for crease-free longitudinal sealing, cross-sealing management thanks to recipe-based control of sealing temperature and



There are practically no limits with the T305 traysealer, according to Multivac

pressure, and an integrated gas analysis system for MAP. The W500 offers an output of 120 packs per minute or a film speed of up to 30m/min. It is also possible to integrate marking or labelling solutions.

Also attracting visitors to the Multivac stand was the traysealer T305, which was developed for the production of MAP and vacuum skin packs in small-to-medium-sized batches and can be used for ready meals, fresh, convenience foods and snacks. In terms of pack shape and materials, there are practically no limits, while



Nature MultiPack calculations illustrate big cost savings compared with cardboard carriers



Above: Full wrap labelling and flow packs are popular solutions coming off Multivac lines



From left to right: Ilpra board member Andrea Zini; Dirk Dunnhaupt, KHS head of sales Germany; Gerhard Bock, sales at Pöppelman; and Roland Feiner, head of processing units at Kronos

there is a maximum format width of 42 x 30cm. The traysealer can deal with a wide variety of trays made of moulded fibre or board, plastics, aluminium or foamed materials, and a large range of upper webs can also be processed.

Looking to the future of aseptic packaging, KHS Group developed a new switching valve for its InnoPET BloFill ACF-L, which controls the volume of the inflow to the actual filling valve and thus permits a total of four different filling speeds. Both large and small bottle volumes with various product viscosities can be processed on the machinery with low levels of foaming.

Future-proofing is increasingly seen as vital to companies in the plastics arena, and KHS has devised a modular set-up for its PET filler platform, which promises low energy consumption and low carbon emissions. It is part of what KHS refers to as its range of future-proof block systems, which also integrate stretch blow moulding technology and labelling. Filling up to 90,000 bottles an hour is possible.

“The beverage market is undergoing an extremely dynamic process of change as

regards its products,” said Manfred Härtel, filling product manager for KHS. “Where possible, bottlers want to and must therefore keep all options open when investing in their production technology so that their portfolio can be tailored to consumer demands at any time.”

The aspects of flexibility, sustainability, product quality and efficiency are thus very much in focus – in combination with smart technology that ensures trouble-free production monitoring and control.

“Nobody can predict which trends will still prevail in the industry in five years’ time,” Härtel added. “This is why we’ve made our platform so modular that it can be converted to other beverages or PET containers at any time according to market requirements.” Individual components can be bought in at a later stage and integrated into the existing machinery with relatively little effort. “Depending on which filling system a customer goes for, they can react to changing market requirements. Thanks to the modularity of the filling systems, functions and features can be easily added.”

The KHS DRV system, for instance, can process both carbonated and still beverages. For the non-contact filling of water and the hot filling of juice at temperatures of up to 95 deg C, there is the NV filling system. And for beer and mixed beer beverages the Dortmund systems provider has its DVF and DRF long-tube filling systems.

Maximum flexibility is also enhanced by the high degree of automation during format and product changeovers. “Even now, for example, operators don’t need more than a quarter of an hour to change a 500ml bottle over to a 1-litre PET bottle,” Härtel said.

According to KHS, carbon dioxide consumption on the new filler platform has been cut from 150g per hectolitre to practically zero, as the company no longer uses it as a pressurisation gas, instead favouring sterile air. As the new filler permits filling temperatures of up to 24 deg C, no additional investment and operating costs are incurred for energy-intensive cooling devices.

Not new but now available for the high performance range is Nature MultiPack, the KHS technology that uses dots of adhesive to join beverage containers together to form a stable multipack.

Depending on the format, the machine forms up to 450 collations of four bottles a minute, with maximum output of 90,000 containers ▶

every hour at nominal capacity. Throughputs of up to 108,000 containers an hour are possible when running at over-capacity.

In a recent press release, KHS shared its own in-house calculations, whereby Nature MultiPack cost €20-25 (\$21-26) per 1,000 packs as opposed to cardboard carriers that cost up to €50 (\$53) for the same number of packs.

“The higher cost of investment pays off over a certain period. At full capacity the system can even pay for itself in the first year,” explained global product account manager Christoph Georg von Aichinger. “KHS is offering simple retrofits on existing packaging machines, also in tune with the times.”

Fellow German equipment supplier Krones is targeting today’s push for alternative beverages and recently won a DLG (German Agricultural Society) award for its aseptic dosing equipment for small quantities.

Up to now, hop oils, aromas or enzymes have typically been delivered in special polymer bags that are connected to the dosing device using tubes, dosing needles or similar injection systems.

Manual intervention is often necessary in order to connect the injection systems to the dosing device, which may cause germs to contaminate and spoil the beverage in



A digital product passport for sustainable plastics, the R-Cycle concept can optimise the recycling process by storing recycling-relevant production data and affixing a clear ID mark on recycled packages

preparation. In contrast to these systems already on the market, the dosing station from Krones does not require any special injection systems, thus enabling the bags to be used and processed safely.

In addition to microbiological safety, the Krones system also provides a high degree of flexibility, since there is no requirement for manufacturer-specific injection systems when purchasing the packaging to be dosed. In addition, the high level of automation minimises the risk of operator error.

Another pioneer in dual-fill technology, GEA – as part of its aseptic cold fill offering – is focused on sensitive beverages with its Aseptic Blow Fill (ABF) 2.0 technology, whereby low and high acid aseptic beverages with different shelf-lives can be bottled on one system.

This is the latest evolution of GEA’s ABF

system, a dry platform that combines an aseptic blow-moulding module with an aseptic module for filler and capper. The system is based on hydrogen peroxide decontamination technology for preform and cap sterilisation. The ABF 2.0 is aimed primarily at food safety through best practices in all phases of the process.

The Fillstar PX aseptic piston filler is part of the Dual Filling aseptic system, which is suitable for sensitive drinks containing large pieces of fruit or cereals.

Finally, circling back to cross-company initiatives, Italian firm Ilpra used Anuga FoodTec to demonstrate a complete tray sealing line, incorporating equipment from various suppliers. In a “remote area of the fairground”, according to Ilpra board member Andrea Zini, the line generated plenty of interest. P

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