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**Beverage packages: the perfect blend of individuality and efficiency**

*In the beverage sector, the packaging industry has to kill two birds with one stone. Firstly, consumers expect individually designed packages, if possible with supplementary functions. And secondly, increasingly eco-minded drinks consumers are showing a growing thirst for resource-conserving containers manufactured with environmentally compatible methods. The industry achieves this balancing act with new packaging strategies and efficient production equipment.*

It is no longer enough for guests to bring their host a bottle of wine, sparkling or otherwise. The latest trend in gift packages involves celebrating the act of giving and stimulating the emotions with new materials and finishes. The companies in this segment develop cartons, folding boxes, baskets, wooden crates, decorative items and carrier bags so that gifts make a big impression. Bottles of wine are presented in exclusive gift boxes with the feel and appearance of real wood. Or the packages come with intriguing extra features – such as a miniature lamp shade for easily converting the empty bottle into a decorative table lamp. Exclusivity and diversity are all-important as far as gift packages are concerned.

What applies to this packaging segment is evident throughout the beverages market: selling just wine and beer in standard bottles is hardly capable of inspiring consumers any more. The selection of alcoholic, mixed and flavoured drinks and thus of ornate bottles as well has now become so vast that the consumer can afford to be choosy. Anyone who wants to take the consumer's fancy has to

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have a product that stands out of the crowd at first glance. “There is a growing emphasis on packaging aesthetics – and hence on the emotions – and this is increasingly important in goods consumption. In a complex world, this applies all the more, as it saves time if decisions are taken not rationally but intuitively,” says Andreas Steinle of the Zukunftsinstitut (Future Institute), a think tank for trend and future research.

### **Top trends: individuality and differentiation**

For example, the mineral water brand evian, which is owned by Danone Waters, goes to huge lengths to highlight the uniqueness of its products. For its prestigious plastic bottles, it exploits the new Nature MultiPack technology, a packaging innovation that uses specialised adhesives to join the individual PET bottles together in such a way that they can be individually positioned and later released from the others with ease. In the design field, Danone is also going unusual ways. Since 2008, evian has issued nine Limited Editions of mineral water bottles styled by well-known fashion designers. In 2016, the American couturier Alexander Wang has taken up the barcode as a package theme and rendered it with black-and-white stripes on the glass bottles. The spaces between the stripes and the purist design are intended to express evian’s natural purity. But individuality and differentiation are highly popular not only among upmarket brands, as a growing throng of drinks manufacturers are marketing their mineral water and lemonade additionally in smaller, 0.5 litre returnable bottles to appeal to smaller households. Or they sell their product in elegant faceted bottles to improve their chances of selection by high-class restaurants, for example.

The benefits notwithstanding, lavish packages do have their drawbacks. The greater the individuality and complexity of the

product's packaging, the more elaborate and expensive its production. The higher production costs are ultimately passed on to the customer in higher prices – a point that consumer activists often criticise. What is more, elaborate production methods and disposable bottles burden the environment. To minimise the impact, some countries have set in some cases ambitious targets for bottle reuse. Germany, for example, wants to achieve an 80 per cent reuse rate, although this has fallen since 2004 from two thirds to 45 per cent. At the same time, the quantity of waste from one-way drinks packages has since increased by 30 per cent. According to current statistics from the German Federal Government, package consumption rose from roughly 465,000 tonnes to 600,300 tonnes in 2014. Retailers and manufacturers are regarded as the instigators of this single-use boom. In the mineral water sector particularly, price wars are taking place in drinks markets and supermarkets, but the special offers only work with single-use bottles, as the collection, cleaning and refilling of plastic bottles is a costly process. Among other things, politicians are therefore demanding the development of the single-use deposit into an environmental steering charge on one-way packages and the extension of the obligatory deposit to juices and nectars.

### **Demand for resource-efficient packaging technology**

Packaging manufacturers are also under an obligation. They have to achieve the balancing act of spectacularly presenting the package with a consumer-friendly design while conserving raw materials and thus easing the burden on the environment. The requirements that have to be met by packaging machines are therefore becoming more exacting as well. "Treating natural resources responsibly and doing business in an environment-friendly way have high priority among manufacturers of food processing machines and packaging machines. They know that sustainable production processes are

hugely important for their customers,” says Vera Fritsche, expert at the VDMA (Mechanical Engineering Industry Association) association for food processing machines and packaging machines. Intelligent control and automation technology and energy-saving drives, compressors, fans and pumps rank, she claims, rank among the classic solutions for saving power and other resources and boosting energy efficiency. Efficient motors perfectly adapted to the machine’s motions and acceleration processes reduce power consumption. In addition, Fritsche continues, innovative and improved processes lower the consumption of energy and water while innovative machine strategies extend service and maintenance intervals and service life and thus save energy.

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At interpack 2017 in Düsseldorf from 4 to 10 May 2017, visitors can find out about the strategies and products that companies are adopting to meet market requirements. The accompanying “components – special trade fair by interpack”, held for the first time in 2014 and taking place again with a revised concept at interpack 2017, also offers interesting insights into the latest production technologies. “components” is mainly targeting component suppliers to the packaging industry and companies offering drive, control and sensor equipment, products for industrial image processing, materials handling equipment, industrial software and communication, and complete automation systems for packaging machines. Manufacturers of machine parts, components, accessories and peripheral equipment are also being addressed, as are producers of components and auxiliaries for packaging materials.

  
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### **Upcycling – second life for packages**

The example of smoothie manufacturer True Fruits demonstrates that environmental protection in the drinks industry has now become

a key factor and can even be turned to one's own advantage. Unlike many other manufacturers, the company markets its drinks not in plastic bottles, but in ceramic-printed, cylindrical 250 and 750 millilitre glass bottles in order to communicate the values of honesty, purity, high quality and transparency that go with the purist design. To ensure that the bottles are not simply discarded into the bottle bank after consumption of their contents, the True Fruits team has given the matter of bottle reuse a good deal of thought. The solution they have come up with is what is known as "upcycling", where the used object serves as the basis for a new product. True Fruits has developed attachments that are simply fitted to the tops of the emptied bottles: at present, the company is offering durable tops, a sprinkler for sugar, salt and spices, a pourer for oils, vinegar and sauces, and a tea strainer. The combination of vitamins, extravagance and sustainability is evidently appreciated by customers: True Fruits is currently one of the market leaders with smoothies.

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Bio-plastics are another avenue for sustainable beverage packages. Last year, Coca-Cola unveiled its new PlantBottle™ generation made entirely of renewable resources and announced market launch in the near future. These bio-based materials of its "first generation" are to be produced in the long run from biomass, e.g. from wood wastes. In a research project, scientists at the University of Hohenheim are testing another promising natural resource as a bottle material – chicory root, used until now for the production of biogas. The inedible root amounts to 30 per cent of the plant. From it, researchers are obtaining unpurified hydroxymethylfurfural (HMF) which can be used for the production of PEF bottles.

## **Innovation potential in production**

However, quite a bit of development work will be required before plant-based bottles succeed the currently widely used PET bottles. All the same, big potential for cost savings can be found not only in the materials sector, but also in production equipment. Industry is therefore doing all it can to improve production methods. An example of this is the Doğuş Çay tea factory in Izmir equipped by Kronos. In 2015, at its Ödemiş site in Izmir, the Turkish company commissioned a NitroHotfill line from Kronos with an output of 22,500 containers per hour. A year after installation, a Kronos team on site at the line launched tests to improve the compressed air system. After an upgrade and simple optimisation of the Contiform 3 blow moulding machine, the line went back into normal operation. A test run has achieved extraordinary results, the company claims. With unchanged container quality, this modification has achieved 44 per cent savings in compressed air consumption. The upgrade yields cash savings amounting to some EUR 40,000 per year based on a calculated machine running time of 6,000 hours per year.

The Dortmund company KHS is also showing that the innovative potential of production equipment is still far from fully exploited. The company Mineralbrunnen Teinach GmbH has been using the KHS stretch blow moulding machine InnoPET Blomax Series III for the production of PET bottles since 2007. To cut the line's energy consumption, the KHS experts have modified its heater box in which the PET preforms are heated for subsequent stretch blowing. For Mineralbrunnen Teinach GmbH, this has yielded over 40 per cent energy savings – savings made possible essentially by the use of new, advanced ceramic reflectors and precision-adapted geometry in the heater boxes, explains Frank Goebel, Head of Service Engineering at KHS. Thanks to the special design, the physical properties of the ceramic elements have had a markedly beneficial

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effect on energy distribution, so less energy is needed to heat the preforms. In addition, the reflectors and infrared radiators have been conPhotod in such a way that the bottle's delicate thread zone is not unnecessarily heated. The cooling of this area can be reduced, says Goebel, thus saving further energy in Teinach. "Thanks to greater efficiency, it is often possible to shorten the heating section," he adds. If fewer heating elements are necessary in the oven, energy consumption by the infrared radiators also drops as a consequence.

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Photos:

*Photo 1:*

Noble brand evian is fully in line with current trends with its individualistic bottles. (Photo: Danone Waters)

*Photo 2:*

The versatile lid of the True Fruits smoothie bottle can be unscrewed and replaced by a salt sprinkler or tea strainer attachment. Customers appreciate opportunities for upcycling. (Photo: True Fruits)

*Photo 3:*

One of a kind: the direct printing of bottles is an effective way of appealing to customers with individualised designs. (Photo: KHS)

*Photo 4:*

Modern, energy-saving production machines like the Contiform AseptBlock from Kronos boost efficiency as they require less and less energy and water. (Photo: Kronos)

*Photo 5:*

Three in one: KHS has launched its InnoPET TriBlock, a bottling and packaging solution for PET bottles integrating a stretch blow moulding machine, a labeller and a bottler. (Photo: KHS)

*The photos to go with the article can be found online at:*

[www.interpack.com](http://www.interpack.com) > Press > Press material > Technical Articles

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