

Don't Leave Footsteps!

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Don't leave footsteps! This imperative originated in rock-climbing, in a particular form of modern sport climbing that aims to leave minimum traces behind on the rock. Spurning traditional fixed anchors, these climbers make a point of using removable – and hence “renewable” – pitons. Their “clean climbing” ethos could well become the credo of the food and beverage production industry in years to come, for this too is a field of activity subject to ever-increasing organizational and social pressure to minimize the environmentally harmful footprint of the end product. Innovative solutions are needed. Which of them are now within reach? Which have just recently become reality? The place to find out is drinktec, the “World’s Leading Trade Fair for Beverage and Liquid Food Technology”, scheduled for September 16-20, 2013.

Recent decades have seen all branches of beverage technology achieve major advances in reducing consumption of resources. In the brewing industry, for instance, primary energy consumption levels in the mash-house – the industry’s heaviest user – were cut by well over half. A similar reduction was achieved in a brewery’s water consumption, now down from what were often two-digit figures to about five liters or less per liter of beer produced. But there will be no resting on laurels: nearly all the brewing groups with global reach have long since been issuing environmental policy statements that go much further. Consumption of fresh water has a target reduction to three liters per liter of beer by 2015 if possible, or failing that by 2020 at latest. More ambitious still are the major international manufacturers of soft drinks with their declared target of the “closed loop”, meaning a water-in to beer-out ratio of 1:1.

50% Sun, 50% Biogas

With their obvious cross-sector application, the themes of resource management and renewable energies have bearing on virtually all product areas represented at drinktec 2013, and in fact recur like a leitmotif through all twelve exhibition halls. The use of solar energy to produce heat for industrial processes is one way forward, first demonstrated at drinktec as long ago as 2005. Practical experience gained during the intervening years has shown that in German latitudes the sun can provide around 50 percent of the thermal energy required by a brewery. For the other 50 percent of the heat, and for electrical power, exhibitors at drinktec 2013 utilize a second proven technology – combined heat and power (CHP), or co-generation, fuelled

by biogas from anaerobic waste water digestion. This heat reservoir can also be used, with the help of adsorption refrigeration systems, to supply a brewery's refrigeration requirements. Although "cold from heat" may sound quite innovative, it is in fact established technology. A bonus feature is that the biogas produced can be burnt off to provide "back-up" heat in the boiler-house

Wind and Water

Depending on location, renewable energy forms such as wind and water can be fed into the power mix at any time. In rural areas, an attractive solution for SMEs can be the use of solar power in the form of woodchips. Also of interest, though not yet quite ready for the market, are wind turbines used to produce compressed air – easily stored for conversion into electrical power on a demand basis by means of a generator. Breweries and other beverage production plants can also be envisaged as well suited to the direct – and hence maximally efficient – physical use of the stored compressed air. "One thing that drinktec 2013 will be reflecting comprehensively is this trend towards using renewable energies," Exhibition Director Petra Westphal declares, " – and not just in individual sectors, but as it affects everyone: the major international players, the middle-ranking breweries, local bottled mineral water suppliers and family dairy businesses."

Devising New Ways to Close the Circle

It's vital to re-think processes and technologies again and again and so find new ways to close a circle – this algorithm holds good through all the production divisions of renewables-based beverage manufacture. To take an example: biogas consists of about 60 percent methane and 40 percent CO₂. Separating off this CO₂ by means of a new membrane technique produces biomethane; and biomethane, with its high and standardized calorific value, can be fed into the natural gas distribution grid. Businesses not in a position to use the biogas-derived thermal energy directly are enabled in this way to convert it into additional profit instead. The captured CO₂, moreover, is a recyclable substance in its own right. In one vision of the future, renewable energy will be used to produce hydrogen and combine it with CO₂ to synthesize an analogue to natural gas. This end product can then be stored in gas tanks pending return into the system or disposal on the market.

"Green" CO₂ from Fermentation Processes

There is a problem with CO₂ in that across the world's major growth regions, in particular, beverage manufacturers often have no direct access to it in usable form. This means costs are high and CO₂ footprints are very significant, because of the distances over which the gas has to be transported and the consequent expense. One alternative used hitherto takes the form of so-called production facilities burning mineral oil or

natural gas at deliberately low efficiency in order to retrieve CO₂ from the flue gas. But that cannot be called a genuine solution. A true source of high-purity “green” CO₂ is to be found rather in fermentation processes such as beer-brewing. Modeling to date has indicated that brewery and soft drinks groups will in future make a practice of setting up production premises on a combined site, enabling them to harvest, process and use the “green” CO₂ to best advantage. One of the strengths of drinktec is its ability to demonstrate this “holistic” knowledge transfer in its entirety during a single trade fair: in Petra Westphal’s words, “the fair is a net that encompasses all the relevant activities and brings them closely together.”

But for a production method to be sustainable it takes more than the grand vision alone. The process itself still has to be optimized in every detail, any chain being notoriously only as strong as its weakest link. Thus reliable in-line measurement, for example, is no less crucial as a link in the optimized production chain than are the right valves, heat exchangers or sterilization strategies. These “operational” segments too will receive comprehensive coverage at drinktec 2013, with all the relevant information available at first hand – as indeed one expects, given that the exhibition is every bit as many-faceted as the challenges facing the beverage and liquid-food world itself.

Further information: www.drinktec.com drinktec photos to download

About drinktec

drinktec is the world’s leading trade fair for beverage and liquid food technology. It is the most important trade fair for the sector. Manufacturers and suppliers from all over the world – global companies and SMEs alike – meet up here with all sizes of producers and retailers of beverages and liquid food products. Within the sector drinktec is regarded as the number one platform for launching new products on the world market. At this event manufacturers present the latest technology for production, filling and packaging of beverages of all kinds, and for liquid food – also encompassing raw materials and logistics solutions. The themes of beverages marketing and packaging design round off the portfolio.

drinktec 2013, which takes place at the Messe München exhibition centre in Munich, from September 16 to 20, 2013, is expected to attract around 1,500 exhibitors from over 70 countries and approximately 60,000 visitors from more than 170 countries.

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Source: Messe München; IFAT