

Create increased value through tangible sustainability initiatives

Sustainability has become a mega trend across the whole food and beverage industry, and consequently there has also been an increased focus on energy and water consumption within the dairy sector in recent years. A lot of progress has been made, but there are still many unexplored opportunities for improvement when it comes to reducing and optimizing the use of utilities, while creating increased value.

The international engineering consultancy company NIRAS is working with leading companies worldwide across the whole food and beverage sector to offer solutions that address demands to reduce water and energy use.

The world's first CO2 neutral juice factory

Integrated Food Projects, a branch of NIRAS Food & Beverage, has laid the foundations for a new carbon-neutral drinks factory in Rotterdam for the leading juice and smoothie company innocent. Once complete, the factory will produce over 400 million bottles of chilled juice a year. The factory will use as little water as possible, and reduce, reuse and recycle waste that is created. The sustainability concepts have been an integrated part of all design phases of the factory right initial studies.

One of the major challenges consist in the fact that carbon neutrality is a moving target. As recently as 2017 green diesel and biomass energy were considered green fuels, but that is no longer the case. Therefore it is crucial to future-proof this factory, so that innocent will continue to uphold the high sustainability standards the company set out to achieve.

These Dairy saves time, money and CO2 emissions

On a smaller scale, NIRAS assisted These Dairy in saving time, money and CO2 emissions with a new high-bay warehouse. These is a Danish dairy specialising in organic products. The popularity of its products means that These's production has steadily increased, taking up more space at the main premises. These Dairy therefore started using remote storage of the packing materials – but this solution costs time, money and CO2 as materials are taken from storage to the dairy by lorries.

To address this as well as making room for further innovations and increased production, These Dairy decided to build a new high-bay warehouse and enlarge other parts of the existing facilities at its main site.

A fully automated crane-system store and retrieve packing materials. Furthermore, an efficient plan for placement means moving materials around as little as possible.

The initial assessments were done by process experts from NIRAS, who thoroughly analysed the logistics. The assessment included the different types of packing material, necessary personnel and level of automation, fire safety, energy and time ef-



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Illustration of innocent's new carbon-neutral production facility in Rotterdam.

iciency, among other things. On the basis of these analyses NIRAS' engineers and architects worked together to design the warehouse to be as logistically efficient, environmentally friendly and considerate as possible of its immediate surroundings in the town of Thise.

Carlsberg takes important step to eliminate water waste

Carlsberg is also taking a big step into the future regarding sustainability. A new water recycling plant will make Carlsberg's Fredericia Brewery in Denmark one of the most water efficient large breweries in the world. The plant will be finished during the spring of 2021.

With the assistance of NIRAS' experts, Carlsberg has taken an important step towards fulfilling its ambition to secure zero water waste at its breweries, including a target to halve the overall water usage. The new water recycling plant will thus reduce average water consumption at the brewery from 2.9 hl of water per hl of beer to 1.4 hl of water per hl of beer. The water recycling plant will clean water that will be used solely as process water and will not be used in any beer or beverage products.

According to Philip Hodges, Executive Vice President for Supply Chain in the Carlsberg Group, the brewery has consistently focused on resource management and water reduction, but there is a need to use more advanced water recycling technologies to reach the ambitious targets in Carlsberg's 'Together Towards ZERO Programme'. The intention is that the Fredericia brewery will serve as a learning platform and a test site for all of Carlsberg breweries worldwide. The Carlsberg Group wishes to implement the recycling techniques at other plants worldwide.

The total water recycling plant at Carlsberg's brewery represents a new innovative approach to safe reuse of rinsed process water, and the project introduces new technologies to improve water efficiency, building on the long-standing tradition of cooperation with Danish authorities and leading universities.

Inspiration at hand

If you want some inspirational thoughts and input to your sustainability initiatives, NIRAS' experts are always available for a talk. ●

NIRAS: 250 highly skilled experts in sustainable solutions

NIRAS is working to help Food and Dairy companies worldwide to identify and implement sustainability projects. We employ more than 250 highly skilled experts in the Food and Dairy industry. We have the design skills and insight into Food and Dairy productions that make it possible to carry out detailed analyses and define the potential for improvements as well as executing the initiatives in cooperation with our clients.



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Experience across all disciplines to execute your next project

NIRAS delivers independent business and engineering consultancy to the food & beverage industry.

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