

Food and beverage industries win with decentralised wastewater treatment

There are a number of environmental and economic benefits from the decentralised treatment of process water.

Water efficiency is high on the agenda for Danish slaughterhouses, breweries and other food producers. Water is costly; it is expensive to buy, and expensive to transport. The more a company can handle locally the better; for the economy and the environment.

Decentralised water treatment is a growing market, and from their newly established Danish headquarters in Vejle, Denmark, Sunstone Water Group will provide customised treatment solutions for companies that use large amounts of water in production. One of these areas is the food and beverage industry.



"Normally, most of the wastewater that comes from food production is transported for treatment at municipal treatment plants. However the water costs and effluent charges are expensive, so for many, there is much to gain economically by treating the water completely or partially at the production site. If the treated wastewater can be reused in the production process, this provides a further economic advantage," says Sune Lieknins Neve, COO of Sunstone Water Group.



The container includes a mobile water purification plant, for example for the food industry

We believe 100% in our product, and we are working through a series of pilot projects with companies where we see a good fit between our technology and their business needs"

Compact and high capacity solution

Sune Lieknins Neve is an engineer and has worked at two of the Danish water industry's major players: Krüger and Grundfos. In Sune's opinion, Sunstone Water Group can do something the major players cannot:

"Our solution is 'plug & play' and can be integrated into any production plant without sacrificing quality and performance. We adapt our solutions to best solve the company's specific challenges, and we are able to react quickly when the need arises," says Sune Lieknins Neve.

"The concept is new, but the technology is proven. Our treatment process incorporates seven modules, and one of the steps uses a filtering technique based on high-technology ceramic membranes and nanotechnology, which

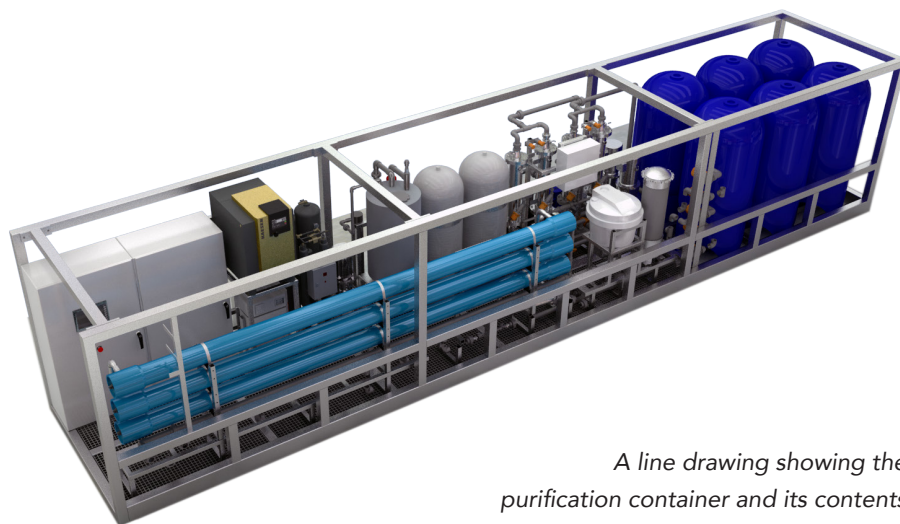
are able to remove organic matter and much else from wastewater."

Clean Water Unit in a container

The Sunstone Water Group's solution, the Clean Water Unit, will either be delivered in a container or integrated into the company's production process, and does not require much space. The configuration of the modules for water treatment is determined by the nature of the process water. The solution is tailored to the specific needs of the company for treatment efficiency, water reuse and such like. For example, the company can choose to have the treated water discharged back into the production process at a certain temperature.

For treating process and wastewater in the food industry, the Sunstone Water Group solution can primarily be used for three treatment processes: Production of clean water in various grades ranging from technical water to ultrapure water; treating internal process flows, allowing for increased water reuse and/or higher concentration of waste; and wastewater treatment to the quality most appropriate or required for reducing emission charges and environmental impact.

"All our projects are unique. Issues, challenges and constraints are different from project to project," says Sune Lieknins Neve.



A line drawing showing the purification container and its contents

"We therefore carry out a thorough pre-study of the situation for each project. Based on this preliminary study, our process engineers choose the appropriate technology configuration for the project, meaning the right combination of our pre-designed key components."

Ambitious targets

Water is a scarce resource, in Denmark and in the rest of the world. So

the market for smart, environmentally friendly and economically viable solutions for water treatment is growing, and this provides a good starting point for Sunstone Water Group, as Sune Lieknins Neve explains:

"We believe 100% in our product, and we are working through a series of pilot projects with companies where we see a good fit between our technology

and their business needs. We are open to the opportunities that present themselves, for both partnerships and developing our business. For example, we see a great potential out there for partnerships for 'proof of concept' and pilot projects, and together with our customers develop new and alternative business models for establishing, servicing and operating facilities.

This how a Clean Water Unit works

Depending on specific project, a Clean Water Unit from Sunstone Water Group is configured from a number of pre-designed key components:

- UV for removal of bacteria and viruses, as well as the degradation of organic molecules
- Ozone for removing bacteria and viruses, as well as oxidation of organic molecules
- Ultrafiltration for removing particles, bacteria and viruses
- Active charcoal to absorb various chemical compounds
- RO membranes for the removal of small chemical molecules and salts
- Stripping column for removal of, for example, nitrogen from wastewater
- Catalysts for emission-free burning of, for example, ammonia gas

In addition to the above key components, the final solution consists of pre-designed piping, fittings, instrumentation and automation. Everything can be mounted in a patented frame construction in a container or as an integral part of an existing production process line.

Sunstone Water Group Europe

Sunstone Water Group Europe ApS is a family-owned Danish company. The company was founded in USA in 2007 by the Danish chemical engineer Elo Nielsen. Sunstone Water Group's core product is the high-technology, mobile water treatment plant called the Clean Water Unit, which cleans wastewater close to the source. This decentralised treatment provides economic and environmental benefits for companies with a large water consumption. A Clean Water Unit can be supplied in a container as a customised 'plug & play' solution or integrated into the company's production process line without requiring much space. The treatment process incorporate seven modules, including Ultrafiltration, a state-of-the-art filtration technology based on high-tech ceramic membranes and nanotechnology, able to remove organic matter and much else from wastewater. Ultrafiltration is combined as required with ozone treatment or treatment based on activated carbon to remove discolouring and odour from water. The combination of quality components and innovative design results in low running costs and a short payback period. Sunstone Water Group's core product is the Clean Water Unit, a solution that can be integrated into a company's production processes or delivered as a 'plug & play' solution mounted in a container.