



Odor reduction at sewage treatment plants

**Only a high-performance
ozone treatment solution
can get the job done**

MELLIFIQ

Tierps Energi & Miljö, Tierp, Sweden

The water supply and sewage treatment in the municipality of Tierp, are handled by Tierps Energi & Miljö AB (TEMAB). The drinking water is made from groundwater, which is filtered and regularly inspected by Livsmedelsverket (The Swedish National Food Administration), to ensure highest water quality before consumption. Water from showers, dishwashers and cleaning or any source of water that is led to the sewage, must be treated before reunited with nature. This is done to prevent the over fertilization and pollution of our waters. In the cleaning process, the water is cleaned from physical objects, organic material and nutrients. The cleaned water is recycled to water in the vicinity, while the rest becomes a mixture called sludge. The sludge is then led to a treatment process in which it is made ready for disposal in landfills.

Facts

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|--------------|--|
| Name: | Tierps Energi & Miljö AB, TEMAB |
| Location: | Tierp, Sweden |
| Purpose: | H ₂ S & odor reduction |
| Performance: | Average 87% H ₂ S reduction in 5 m ³ /s air flow |

Solution:

Ozonetech RENA Pro series

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|---------------------|----------------------|
| Dimensions (HxWxD): | 1,800 x 800 x 600 mm |
| Input power: | 2.0 kW |

The problem

In the sludge treatment process, various odorous compounds can be formed due to microbial decomposition of organic matter, highly dependent on the type of wastewater handled (industrial or commercial). Amongst these compounds, the compound that is considered one of the worst malodors is the reduced sulfur compound, hydrogen sulfide (H₂S). H₂S is a very common odorant in sludge treatment processes that can

be a large hindrance for the staff at the plant. H₂S has a very distinct odor of rotten egg with an odor threshold in the size range of a couple parts-per-billion (ppb), meaning that any volatilization or leakage in the process may lead to highly unpleasant conditions, even to the extent that neighboring areas around the plant might file odor complaints.

The solution

The facility had already an old ozone system in place, but it generated little or no results. However, we were up to the task and installed an Ozonotech high-performance ozone system reducing H₂S and odor from the wastewater treatment facility to a minimum, an investment resulting in a more pleasant working

environment and a huge relief for the neighborhood. A high capacity Ozonotech RENA Pro system was offered, including sensor and full monitoring. The injection point in the ventilation was carefully chosen by working together with TEMAB in order to ensure maximum efficiency.

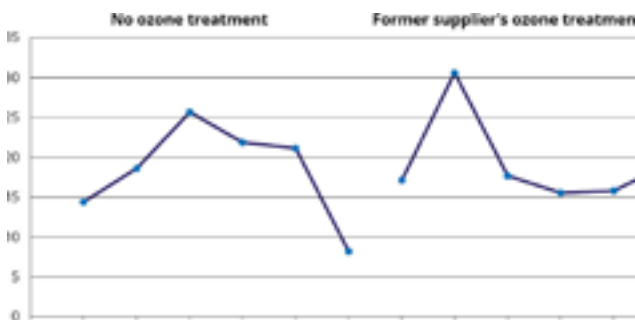


Sewage treatment plant in Tierp, Sweden.

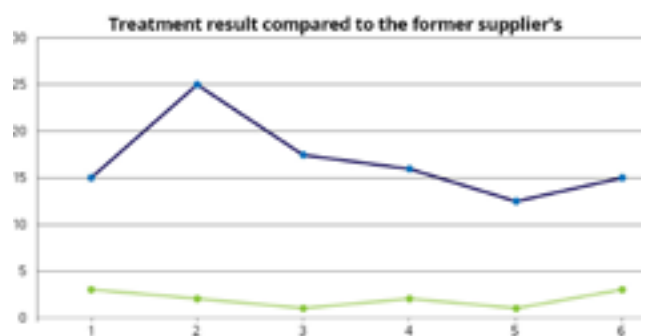
Evaluation

The Ozonotech RENA Pro reduced the H₂S levels in the process ventilation from the sludge treatment basins significantly, reducing the odor levels at the facility as a whole with 87% compared to the former supplier's

ozone system. The careful design and optimization of the RENA and the ventilation system minimized risks for odor leakages and risk of bacterial growth in the ducts.



The graph shows the daily average H₂S concentration before we were called in. To the left is the daily average concentration for six days with no ozone treatment. To the right is the daily average concentration for six days of treatment using the former supplier's ozone system.



The graph shows a comparison of the daily average H₂S concentration of the competitor's solution and our RENA Pro solution. Over a 6-day period, the Ozonotech solution on average reduced the H₂S concentration 87% compared to the competitor's previous ozone treatment.

About Mellifiq

Mellifiq is a multi-awarded environmental service company group, that has since the early nineties evolved into a world leading system and solution provider with multiple groundbreaking applications for industrial, municipal, and real estate clients. We supply cutting-edge technologies to manage the most sophisticated air, water, and energy challenges.

Mellifiq offers a complete range of air and water treatment technologies and solutions across multiple industries such as processing industry, energy sector, food and beverage, pharmaceutical, wastewater treatment and commercial real estate.

Mellifiq offers strong and renowned brands, such as Ozonotech, Nodora and Water Maid, and world-class engineering services combined an excellent track record of more than 40 years of innovation. We help our clients achieve the most efficient and sustainable solutions while creating the maximum value for their businesses.

With several business units across Europe, Mellifiq is headquartered in Stockholm where research and development, production, QA and certification all take place. Our unique technology and our extensive expertise have made us the Center of Excellence for the world's most complex projects, and a global player with installations on all six continents.

Everyday millions of people rely on our solutions for ventilation, disinfection, sanitation, and odor control. We are committed to raising the bar for the concept of clean and the industry standard for engineering, technical services and general contracting.

For additional information, visit our website at www.mellifiq.com

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