Leksand Vatten
A Mellifiq reference project

100% odor removal at sewage treatment plant

The synergy between catalysis and ozonation ensures H_2S and odor-free emissions

MELLIFIQ

Leksand Vatten, Leksand, Sweden

The wastewater treatment plant in Leksand, Sweden was built in the 1960s and has since been renewed many times. A major rebuilding took place during 1979-80, including the incorporation of a biological step. Recently, another upgrade was necessary due to a higher capacity demand partly caused by the added treatment of the wastewater from the nearby city of Insjön. The planning began in 2015, identifying the location and designing new pools and biological steps. The project continued until early 2019, when the new facilities started operations.

Facts

Name:	Leksand Vatten AB
Location:	Leksand, Sweden
Industry:	Wastewater treatment plant
Air volume:	22,000 m^3/h
Purpose:	H_2S odor removal
Performance:	100% H_2S removal

Solution:

Nodora CAT with OCM RubiCAT

Units:	2
Dimensions (HxWxD):	2,070 x 1,160 x 760 mm
Active material:	OCM RubiCAT
Pressure drop:	120 Pa

Ozonetech RENA Pro B-series with multiple injections

Units:	3
Dimensions (HxWxD):	1,800 x 800 x 600 mm
Input power:	2.3 kW
Noise level:	55 dB

The problem

H_2S is an air pollutant well-known in the sewage treatment industry. It is emitted from the wastewater, diffusing in the surrounding air. Disturbing odor problems are often related to H_2S emissions, due to the high sensitivity of the human nose for this compound.

Since new facilities were going to be built, increasing the wastewater load, a system for treating H_2S was mandatory. This case was particularly complex because various streams needed to be treated, with a diffused H_2S emission.

Images of the wastewater treatment plant.

The solution

A complex problem required an advanced solution, treating all streams with a combination of catalysis and ozonation. Most of the H_2S was removed with two units of the Nodora CAT, the catalytic version of our widely used Nodora air treatment system. The main difference between the two versions is the material composing the filter. Our OCM RubiCAT catalyst was used in this version of the Nodora CAT. It is designed to selectively remove H_2S from polluted air streams, even at high concentrations. Ozone was used as final polishing step, ensuring zero odor emissions.

The ozonation step included three Ozonetech RENA Pro ozone systems. These units are the most powerful ozone systems in our portfolio, producing highly concentrated ozone. The oxidant is injected into the ventilation ducts just after the catalytic stage, using the ventilation system as reaction chamber.

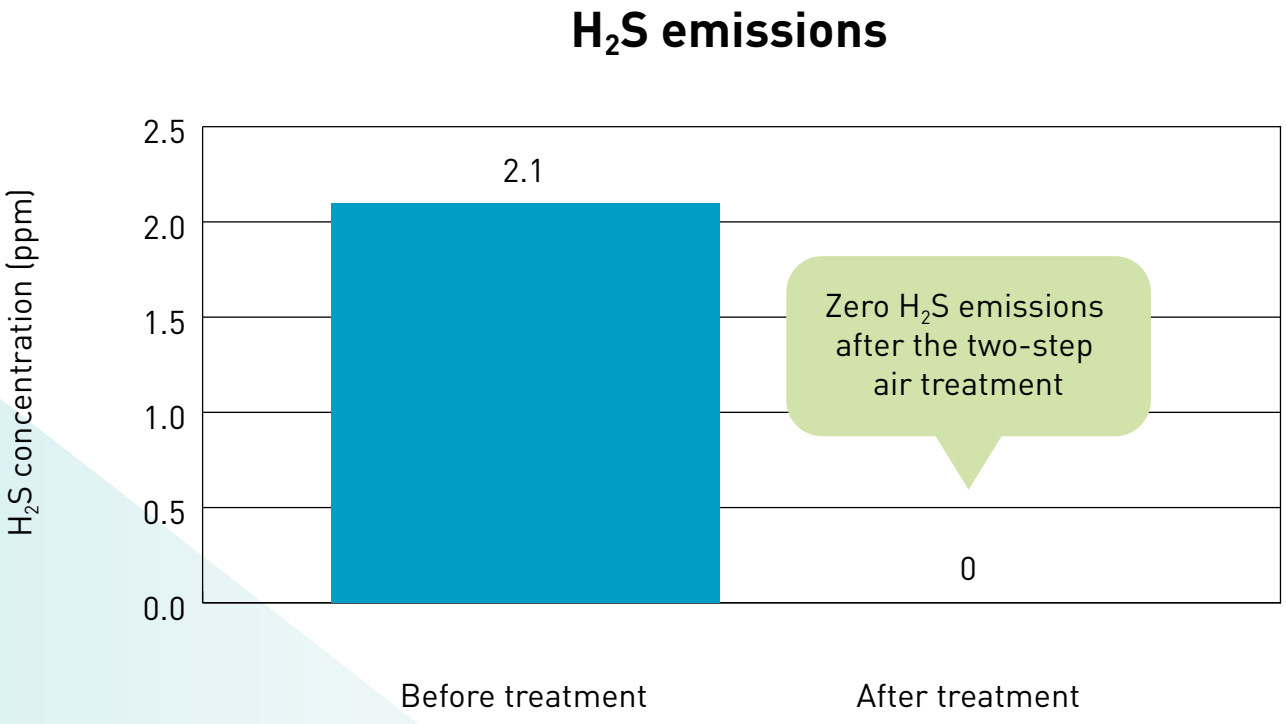
An optimal configuration was obtained by splitting the ozone flow and injecting it into different process streams, according to the various requirements. This configuration resulted in a very accurate usage of the produced ozone, optimizing the energy consumption and operational costs.

The first treatment step consists of two Nodora CAT modules tailored to remove high H_2S concentrations.

Evaluation

Our combined Nodora CAT and Ozonetech RENA Pro system proved to be very effective at removing H_2S and all related issues. No H_2S was detected after the Nodora CAT stage with the ozonation stage abating the remaining odorants and ensuring no H_2S or odor emissions, even in case of high peaks. Measuring the pollutant concentration at the outlet of the system, the H_2S removal was 100%, confirming the effectiveness of the tailored solution.

The RENA Pro systems produces the ozone necessary to eliminate the remaining odors after the Nodora CAT treatment.



When increasing the wastewater load, Leksand Vatten AB can now feel confident that no H_2S and odors will be emitted, with no disturbances to the surroundings for the years to come.

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 Ozonetech, 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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