



Eliminating VOCs at Hazardous Waste Management Facility

**Mellifiq's three-stage treatment
solution eliminates VOC
emissions and complies with strict
environmental standards**

MELLIFIQ

Waste management facility Malmö, Sweden

In this project, we are partnering with a leading waste management company in Skåne to implement an Advanced Oxidation Process (AOP) solution, along with additional polishing steps, to address VOC emissions. Headquartered in Malmö, the company specializes in treating hazardous waste, including liquid waste, sludge, and similar substances.

Facts

Location :	Malmö, Sweden
Application	Removal of VOC emission
Industry:	Waste management

Solution:

Mellifiq delivery:	Commissioning a three-stage solution that includes a custom-made Nodora X 4000 air filtration unit, a RENA Pro B ozone system, and a Saniray Aurora A UV system.
Capacity:	2000 m³/h

The problem

To comply with the strict VOC (Volatile Organic Compounds) limits set by the European Commission under the *Industrial Emissions Directive (IED) 2010/75/EU*, our partner needed to effectively manage and treat emissions from hazardous liquid waste arriving by tankers.

During the unloading process, the waste is discharged into a designated area, releasing a significant amount of VOCs that require effective treatment. These compounds at waste management facilities pose several environmental

and health-related challenges, including air pollution, regulatory compliance, and worker exposure risks. The composition of VOCs is unknown, but the primary source is oil.

A total of 2,200 kg/year of VOCs is currently being emitted at the facility, while upcoming regulations require emissions to be reduced to 1,500 kg/year. Additionally, VOC concentrations must not exceed 40 mg/m³ at any measurement point.



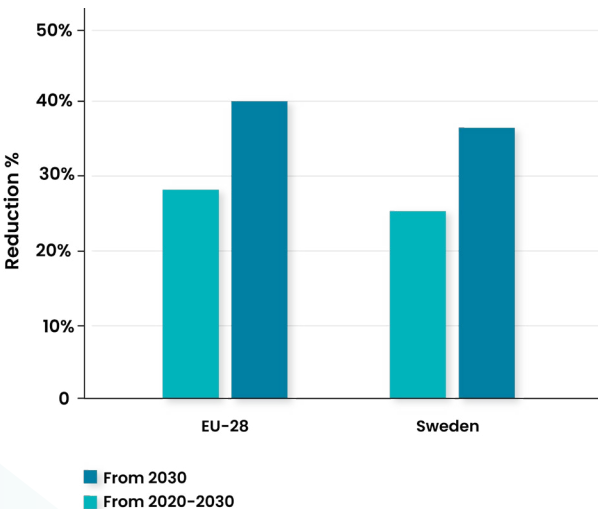
Tankers carry liquid industrial waste, solvents and other VOC-emitting substances from various industries to be processed and treated in compliance with environmental regulations.



The waste emptied into the discharge area releases a large amount of VOCs.

Directives and regulations of VOC emission

EU directives set key milestones for VOC emission reductions, with *Directive 2016/2284* specifying targets for both individual countries and the entire EU. Since 2001, the EU has actively worked to lower VOC emissions, with Sweden implementing the directive through regulation *SFS 2017:418*. The graph shows planned VOC reduction percentages for the EU-28 and Sweden, based on 2005 levels, with targeted reductions for 2020 and 2030.



The solution

With a strong focus on environmental responsibility, the company turned to Mellifiq for assistance in achieving its emissions reduction goals. Mellifiq provided an Advanced Oxidation Process (AOP) solution, which includes a turnkey ozone system and a high-capacity UV system that treats up to 90% of the VOCs, followed by a final polishing step that ensures VOC reduction even with variable pollution loads.

All liquid waste treatment processes, including sedimentation tanks, filter systems, and buffer tanks, are connected to air ducts that merge into a single exhaust stream. The collected exhaust gas is treated with ozone generated by an Ozonotech Rena Pro at two injection points.

The first injection occurs early in the process, allowing the ozone to react with the VOCs. The second injection takes place just before the Saniray UV filter, where ozone-VOC reactions are enhanced by the low-pressure UV-C in the Saniray Aurora system, forming the AOP necessary to break down challenging VOC compounds. Finally, the gas passes through a Nodora X system, which removes any remaining traces of VOC emissions.



The RENA Pro B ozone system generates ozone for the treatment process.



The exhaust gas stream flows through merged air ducts, where ozone is injected to react with VOCs.



Tailored Nodora X Air Filtration System: The final step in removing remaining traces of substances.



Saniray advanced UV-C technology enhancing ozone-VOC reactions to break down challenging VOC compounds.

Evaluation

Despite initially high VOC levels, Mellifiq's comprehensive three-stage treatment solution ensures that final emissions consistently remain well below the regulatory threshold of 40 mg/m³. With a treatment capacity of 2,000 m³/h, the solution offers an efficient, scalable, and reliable method for meeting strict environmental standards.



Mellifiq's expert team is installing and commissioning process equipment, ensuring seamless operations and top-tier performance.

Mellifiq significantly reduces the environmental footprint of waste management operations through close collaboration with the client, providing a tailored approach to address both current and future emission reduction goals.



Due to space limitations inside the facility, the Nodora X system was placed in a separate building next to the facility.



A waste management facility in Malmö, Sweden, specializing in the treatment of hazardous waste.

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

