

**Pitkäniemi wastewater
treatment plant**

A Mellifiq reference project



Mellifiq supplies Finland's first municipal micropollutant removal process

**The city of Lohja receives first
ever Finnish system to treat
pharmaceutical residues from
municipal wastewater**

MELLIFIQ

Pitkäniemi Wastewater Treatment Plant, Lohja, Finland

Lohja is a picturesque lakeside city located an hour's drive northwest of Finland's capital, Helsinki. It is known as an ideal place for building holiday residential homes in the middle of nature, being one of the municipalities in Finland with most such residences. The 47,500 inhabitants of Lohja are relying on the Pitkäniemi wastewater treatment plant for sewage treatment. The plant, located in the outskirts of the city is currently processing an average flow of 300 m³/h.

Facts

Name:	Pitkäniemi wastewater treatment plant
Location:	Lohja, Finland
Industry:	Public utility
Challenge:	Active pharmaceutical ingredients (API) treatment
Project value (USD):	200,000

Solution:

Mellifiq delivery:	O-GAC™ process including advanced oxidation and granular activated carbon filtration
Performance:	95% removal of pharmaceutical residues and 15% reduction in chemical oxygen demand
Footprint (m ²):	20 m ²

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The problem

The municipality is part of a national initiative for cleaner water that, for the first time in Finland, is committed to investing in technology for the removal of active pharmaceutical ingredients (API) from wastewater. Both the Lohja municipality and the central government are now working to address the challenges posed by micropollutants and pharmaceutical residues. Their challenge is adapting to the newest European standards for water treatment, aiming to be technologically prepared when new regulations should be enforced. To implement such extensive changes in the treatment framework, it is essential to improve current knowledge about treatment technologies, and the effects of current wastewater treatment procedures.

It was established from an extensive pre-study conducted by Mellifiq that Pitkäniemi wastewater treatment plant emits substantial levels of APIs annually; up to 100 kg of active substances pass through the primary and secondary treatment steps, with potential long-term effects on Lojosjo lake and downstream recipients.



Image from the Pitkäniemi wastewater treatment plant.

Klippan wastewater treatment plant

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The Solution

In preparation for full-scale implementation, Mellifiq delivered a complete pilot system with an O-GAC™ process, including ozonation and adsorption using select high-grade granular activated carbon. The system was installed as an extension from the secondary sludge settling tanks, continuously receiving final plant effluent. The combination of ozonation and filter polishing was designed and integrated as a complete turn-key delivery with commissioning services.

Evaluation

The performance of the system was extensively evaluated based on a recurring sampling plan, conducted by Mellifiq OY engineers and field technicians, evaluating more than 90 active substances. The average total removal rate was confirmed at more than 95%, compared to the European guidelines of 80%. It was also confirmed that the adsorption bed lifetime can be extended by 15% using upstream ozonation by removing the majority of the feed water API levels.



Pilot treatment containerized system with the Mellifiq O-GAC™ process.

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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