

CASE STUDY

Wastewater Management - Active Carbon Filtration



Client:

Middelfart Spildevand

Location:

Denmark

Date:

2021

Sector:

Wastewater Management

CARBON FILTRATION HELPS MIDDELFART WASTEWATER WITH MINIMIZING ODOUR NUISANCES

Middelfart Wastewater is located on Strandvejen between Middelfart and Strib and it receives wastewater from all households in Middelfart and the surrounding areas. The past few years, the two cities have grown and the neighbours have moved even closer to the treatment plant. The wastewater treated by Middelfart Wastewater can smell unpleasant and create a nuisance for the neighbours around the treatment plant. The wastewater undergoes a long process at Middelfart Wastewater, where the wastewater is treated and at the end of the process it eventually becomes purified water which is then released to the sea surrounding Middelfart. In addition, the by-products biogas is converted to electricity and heat as well as bio-fertilizer that is being used on farmers' fields.

WORKING ON A FLEXIBLE SOLUTION

In order to satisfy the surrounding neighbours and to improve the work environment for the staff in relation to odour nuisances, Middelfart Wastewater had worked ongoing to improve the conditions. For example, some of the process tanks were covered and new carbon filter solutions installed. The results however from the existing carbon filters were inconclusive, and the solution itself was inflexible, unmanageable and did not fit in aesthetically. Additionally, the carbon filters had to be emptied with a sewer cleaning truck which was an additional recurring expense.



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Middelfart Wastewater thoroughly researched the market for filtration solutions that could fit the needs and decided on contacting Camfil to find a highly efficient, flexible and maintenance-friendly filtration solution. Middelfart Wastewater and Camfil collaborated well to get all the details and demands clarified. The Camfil team proposed a space-saving return installation, namely a HDC carbon filter housing with activated carbon in a specially selected media mixture, that can take well care of the odour nuisance.



HDC unit with pre-filters and fan that cleans the air at the concentration tank

What makes Camfil's HDC solution unique is the use of standard size refillable media cells. Depending on the contamination, it is possible to use almost all types of molecular filtration media in the HDC cells. This high-tech approach is used to eliminate internal leaks that would otherwise reduce efficiency. The HDC housings are also designed to ensure easy installation and operation. The cells can be equipped with new media without the need to use special tools or having specialized knowledge about this. The cells run on rails, so filling and emptying is easy for the maintenance staff to handle. After commissioning, the filters and housings are completely passive in operation and require a minimum of routine maintenance. The housing is also extremely flexible, because modules can easily be added if needed.

GOOD RESULTS

Initially an order was placed for a HDC filter housing, made of 316 stainless steel, including a pre-filter section with ePM1 55% panel filters and fans for the covered sludge storage tank. Since the results of the odour nuisances removal were good and the filter lived up to expectations, Middelfart Wastewater also chose to order a similar HDC carbon filter unit for the covered

concentration tank, then a unit for the press building and finally for the digester. The last HDC filter unit will be delivered in December 2021. The HDC carbon filter housing for the press building and the digester have double filtration with two different types of activated carbon for the most optimal odour removal.

Casper Strecke Skovgaard, project manager at Middelfart Wastewater, about the collaboration with Camfil:

"I contacted Camfil and was greeted by a very welcoming and attentive team. There were both a quick response and follow-up. Since odour is a relatively unmanageable size, it was important that the system is flexible so that it can be updated as needed. The solution seemed really sensible and the price was okay too. Due to a very honest and credible dialogue there was a good start for a very good collaboration. Given all of the aforementioned, I was convinced that this was the right solution for us."



ABOUT MIDDLE SPEED WASTEWATER

Middelfart Spildevand A/S is owned by Middelfart Municipality and currently employs 21 employees, who provide transport and treatment of wastewater from households and industries in the Municipality around the clock. The company's most important tasks are to ensure the citizens have efficient and safe handling of wastewater and rainwater, i.e. with a focus on stability, cost-effectiveness and environmental soundness.

