Emulsions and oil-water mixtures

Waste disposal/recycling

CaseStudy

Treatment of light emulsions and oil-water mixtures

An international waste management company operates various wastewater treatment systems at several locations in Austria, including CP plants, biological reactors and evaporator technology. A new, energy-efficient and reliable solution was specifically sought for so-called 'light waters' – i.e. lightly contaminated emulsions and oil-water mixtures. MKR initially provided a test plant – with convincing results.

Initial Situation

Different treatment systems were already in place at two locations. However, there was no suitable technical solution for lightly contaminated wastewater such as light emulsions or oil-water mixtures. The aim was to find a process that was efficient, space-saving and scalable, while also offering high operational reliability and low operating costs.

Project at a Glance

Project:
Scalable solution for processing light emulsions – successfully tested and implemented at several locations

System Technology:
- Container (provided by customer)
- Belt filter
- Pump station
- UC membrane filter system 8

Customer:
Internationally active environmental service provider with several locations in Central Europe

Contractor:
MKR Metzger GmbH
Rappenfeldstraße 4
86653 Monheim

Requirements

- Treatment of light emulsions and oil-water mixtures
- Simple and safe integration into existing operating concepts
- Testability of the technology before making an investment decision
- Scalability depending on annual volume and location
- Low maintenance requirements with stable cleaning performance

MKR Solution

Following initial laboratory analyses, a test plant was commissioned at a site in collaboration with the customer. The plant consisted of:

- Pre-filtration (belt filter and bag filter)
- UC 1.0 membrane filtration with ceramic membrane

The customer carried out the test series independently over a period of six weeks and evaluated the results internally. Based on this data, a tailor-made concept for practical operation was developed: the decision was made in favour of the UC 8.0 membrane filter system with 8 m^2 filter area, supplemented by optimised pre-filtration using belt filters. MKR supplied the complete system, including process diagram and installation plan, tailored to the local space conditions.

Three years after successful operation at the first location, the second location was also equipped with the same technology – adapted on the basis of the operating data and experience gained from the first project.

Results

- Reliable treatment of light emulsions and oil-water mixtures
- Successful trial operation with customer validation
- Scalable solution – technology adopted across multiple sites
- Robust ceramic membrane with long service life and low maintenance
- Adaptable peripherals depending on site conditions
- Sustainable and economical operation with reduced external disposal