

Turn Oily Wastewater Into Value



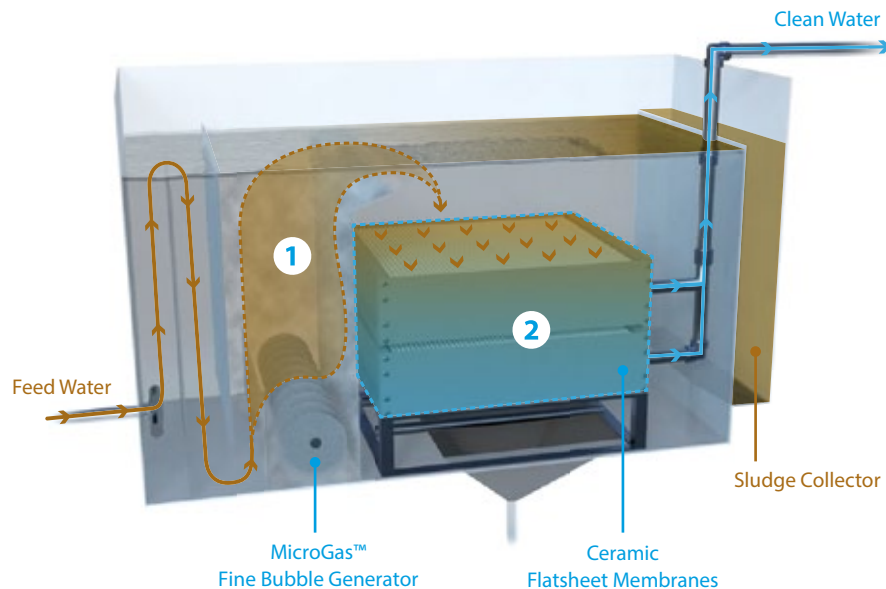
akvoFloat™ Systems

Total removal of oil
and suspended solids
from hard-to-treat
industrial waters.

www.akvola.com

akvoFloat™ Technology

akvoFloat™ is a hybrid water treatment process consisting of flotation and filtration. The technology leverages our proprietary the **MicroGas™ Fine Bubble Generator**, novel ceramic flat sheet membranes and proprietary membrane cleaning strategies. The result is the most energy-efficient design on the market for oil and suspended solids removal in hard-to-treat industrial waters. The ceramic materials used for flotation and filtration make akvoFloat™ highly robust in harsh chemical and thermal environments, and our fully automated systems are suited for small and large-scale applications.



1. Microflotation

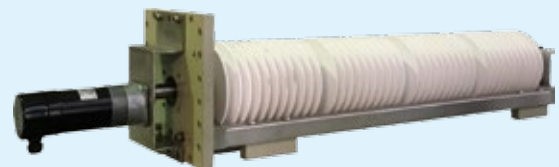
The feed water first enters the flotation zone, where the **MicroGas™ Fine Bubble Generator** induces fine gas bubbles (50-70 micron). These microbubbles attach to suspended matter, oils, hydrocarbons and organic flocs which are carried to the surface. The float layer that forms on the surface is skimmed off the tank at regular intervals.

2. Ceramic filtration

The partially treated water then enters the filtration zone, where submerged ceramic membranes are used as a polishing step. The water is sucked out of the tank through the membranes by means of a vacuum pump. This step provides high, constant permeate quality with a very low pressure drop.

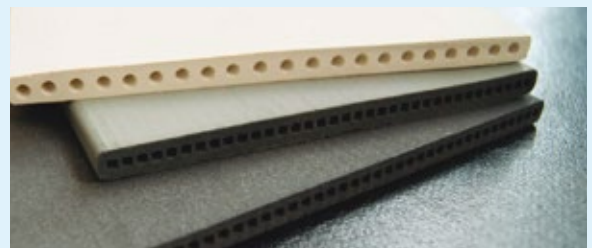
MicroGas™ FINE BUBBLE GENERATOR

Our bubble generator is based on ceramic diffuser discs mounted on a rotating shaft. Compressed air/gas at (1-2 bar) is injected through the shaft and permeates through the diffusers into the tank, where a cloud of microbubbles (50 - 70 micron) is created with an extremely low energy consumption. Unlike DAF, our flotation requires no saturators, recycle pumps or nozzles, making it more reliable and cost-effective.



CERAMIC FLAT SHEET MEMBRANES

akvoFloat™ uses novel outside-in filtration membranes mounted in vacuum/gravity driven modules. We select the ideal material (SiC or Al₂O₃) and pore size (0,04 to 0,2 micron) for each application, and adjust our proprietary membrane cleaning strategies to ensure a reliable and cost-effective operation. The operating trans-membrane-pressures range between -0,1 and -0,4 bar.



TARGETED CONTAMINANTS

- **Fat, Oil & Grease (free and emulsified)**
Up to 99% removal
Up to 100.000 ppm
- **Bacteria (log4)**
- **Heavy Metals**
- **Suspended Solids**
99% removal
Up to 5.000 ppm
- **Turbidity and Silt**
- **TOC/COD**

KEY SPECS

- **High Recovery (>95%) – Low Waste**
- **Low energy consumption (1 kWh/m³)**
- **Fully automated**
- **Robust to highly varying influent loads**
- **Bubble Size: 50 – 70 micron**



Benefits



Fast Return on Investment

Lower investment and operating costs and 90% less energy consumption than competing technologies. The average payback time of our systems is between 12 and 18 months.

Robust & Easy to Operate

Our systems are fully automated and require minimal oversight. Additionally, the use of novel ceramic membranes translates into minimal maintenance and maximal uptime.

Compact, Modular & Scalable

The integrated and modular approach of **akvoFloat™** makes it unrivalled in terms of footprint and flexibility – our systems can grow as your needs grow.

Applications



- Minimize wastewater volumes and costs
- Extend fluid lifetime
- Treatment of metalworking fluids, die casting emulsions, washing waters, degreasing baths, ...
- **More...**



- Wastewater reuse
- Revamp secondary treatment
- Treatment of segregated effluents: desalter effluent, tank bottom draws, ...
- Hydrocarbon recovery
- **More...**



- Produced water reuse (PWRI, EOR, SAGD)
- Meet offshore discharge limits
- **More...**



- Wastewater reuse (e.g. sandfilter backwash)
- Treatment of cooling water from a direct contact circuit
- Process water from pickling and organic coating
- **More...**



Die Casting (metalworking)
(ltr: feed, permeate, concentrate)



Sandfilter backwash (steel)
(ltr: feed, permeate, concentrate)



Metalworking fluids
(ltr: feed, permeate, concentrate)

akvola Technologies is a German water technology company that provides cost-effective and environmentally-friendly solutions based on **akvoFloat™** – a proprietary flotation-filtration process– to clean hard-to-treat industrial wastewater containing high concentrations of oil (free and emulsified) and suspended solids.

These solutions can be implemented four major water-using industries: Oil and gas, Refining and petrochemicals, Metalworking and Steel.



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Proven Technology. Proven Expertise.