

Aeration Industries
AIRE-O₂ Microfloat[®] System
The Alternative to Costly Dissolved Air Flotation Systems

The KEE AIRE-O₂ Microfloat[®]

This Dispersed Air Flotation System is specifically designed for physical/chemical pre-treatment of wastewater. The Microfloat's removal of fats, oil and grease before biological wastewater treatment greatly reduces the load for conventional facilities.

Dispersed Air Flotation in a circular tank system

Advantages:

- Requires no balancing of flow rates.
- Removal rates of up to 90% for fats, oils and grease.
- Eliminates the need for fine screens either before or after fat traps.
- Substantially reduces settleable BOD loadings.
- Reduces surcharges and fines levied by municipalities.
- Individual Microfloat aerators can be used for a retrofit of existing tanks.
- All Microfloat systems are custom designed to solve individual customer needs.

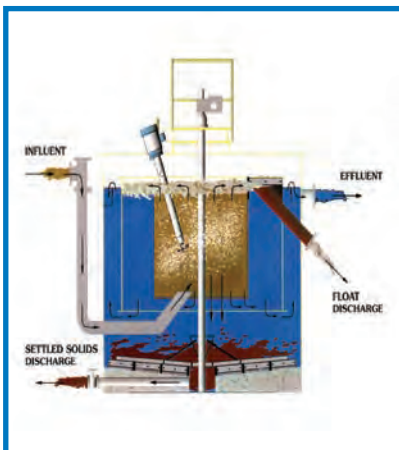
How it works:

The specially designed propeller disc on the AIRE-O₂ aerator's shaft produces extremely fine bubbles, transferring 10 to 50 micron air bubbles into the water through special ejectors. The extremely fine bubbles attach to solid particles in the liquid and float these solids to the surface of the tank for easy removal by solids handling equipment. This process tremendously reduces the loading and biological oxygen demand (BOD) requirements of secondary treatment facilities.

Industries served: food processing, animal rendering and feed plants, cosmetics companies, pulp and paper, bulk transportation companies and the petrochemical industry.

Municipalities served: municipalities receiving wastewater from the industries listed above and for certain sludge thickening applications.

The KEE AIRE-O₂ MICROFLOAT[®] Dispersed Air Flotation System for the separation of fats, oil and grease (FOG).



Case Histories

1. Northern and Southern Trucking Firm washes up with pre-treatment.
2. Midwest Red Meat Processor's pre-treatment cuts chemical costs too.
3. Midwest Red Meat Processor's pre-treatment for reduction and recovery.

1: Problem On the Road Again, Cleaner and in Compliance!

A huge trucking company needed advanced wastewater treatment for its trucking line that hauls a variety of food products. Following each shipment, the trucks must be totally cleaned out before picking up another load. The food hauled varies from shipment to shipment. Many of the food products contain a high amount of fats and/or oily substances. The company had discharged directly to the city but that was about to change. Pre-treatment removal of the fats and oils was mandated. Before deciding on a specific system, the company did experiments at its northern location.

Solution

The trucking company chose Aeration Industries AIRE-O₂ MICROFLOAT® System for its northern facility. The custom designed system had a circular tank design with a diameter of 3.048m. A 7.5hp (5.5 kW) unit motor powers it. The flow into the MICROFLOAT® varies according to how many trucks discharge into the system on a daily basis. The design capacity is 4,600 gallons per hour or 17,714 litres per hour. The company chose the MICROFLOAT® for its small, circular footprint that easily accommodated its northern site. Pre-treatment removal rates of FOG were excellent at 90%, greatly reducing surcharges to the city's wastewater treatment system.

Results

The trucking firm was so pleased with the MICROFLOAT system that they decided to build several more systems for their other facilities located in the southern USA. Again, the performance exceeded expectations. At the northern site, compliance standards became even stricter, calling for major biological oxygen demand (BOD) removal as well. Again, the trucking company looked to Aeration Industries for help. The company's high rate activated sludge, UNISYSTEM®, wastewater treatment system was purchased and installed to meet these greater treatment requirements. The company is happily trucking along, in compliance and pocketing the surcharge savings!
For more information,

Pre-treatment removal rates have been greater than 90%.



e-mail sales@keeprocess.com

Problem

Meat Processor's Create New Product with Treatment!

2: A southern, USA red meat processor's wastewater treatment was getting more complex and expensive but still did not yield the expected results. Regulations were getting stricter and stricter as well. The processor was spending US \$192 per day on ferric chloride to promote coagulation and settling but was still not satisfied with the results. The company decided to look at the AIRE-O₂ MICROFLOAT® Dispersed Air Flotation System that is specifically designed for physical/chemical pre-treatment of wastewater. The MICROFLOAT's removal of FOG before biological wastewater treatment greatly reduces the load for conventional facilities.

Solution

The meat processor installed two 7.5hp (5.5kW) AIRE-O₂ MICROFLOAT® dispersed air flotation units as a retrofit into existing tanks. The specially designed propeller disc on the AIRE-O₂ aerator's shaft produces extremely fine bubbles, transferring 10 to 50 micron air bubbles into the water through special ejectors. The extremely fine bubbles attach to solid particles in the liquid and float these solids to the surface of the tank for easy removal by solids handling equipment. The immediate impact was conservatively saving more than US \$100 per day on ferric chloride costs and increased production of more desirable float as rendering product. Removal rates exceeded 80%.

Results

The red meat processor had been paying to dispose of the float, but, with the production of more desirable float, the processor sold it as product. Additional benefits were reduced odours. Moisture levels in recovered materials were reduced which, in turn, reduces cook time for the float. Completely satisfied with the MICROFLOAT's performance, the meat processor installed two more additional units shortly thereafter. All of the equipment has been running almost maintenance free for years, even in this harsh environment.

For more information,
e-mail sales@keepprocess.com

*The MICROFLOAT's
immediate impact was
a \$100/day chemical
savings.*



Problem

This Midwest USA red meat

3: Pre-Treatment System - A Success for Meat Processor!

processor faced rapidly rising surcharges from the municipal wastewater treatment plant that received the processor's wastewater. City authorities encouraged the processor to help fund an expansion of the treatment plant's capacity, an option the processor wanted to avoid. A successful pre-treatment system would greatly reduce the loading and biological oxygen demand (BOD) requirements of the city's secondary treatment facilities.

Solution

The meat processor decided to try the AIRE-O₂ MICROFLOAT® dispersed air flotation for additional pre-treatment. Two 7.5hp (5.5kW) MICROFLOAT® units were installed in existing tanks. The plant had been recovering 4920.5 litres per day of TSS (total suspended solids), oil and grease floatables. After the units were installed, recovery and removal rates doubled. Floatable recovery now reaches 10219.5 litres per day and removal rates exceed 90%.

Results

Aeration Industries offers a rental program for its MICROFLOAT® units. Extremely impressed with the dispersed air flotation unit's performance, the meat processor purchased the two units originally leased and ordered a third one. An added benefit of this system is that it can be added to existing tanks or be installed as a complete system. It's small footprint made it easy to accommodate, space-wise, the meat processor's facility. Best of all, gone were the surcharges assessed by the city. Instead, the AIRE-O₂ MICROFLOAT® System added recovery, product, and profits!

For more information,
e-mail sales@keeprocess.com

*Recovery and removal
rates doubled with the
MICROFLOAT®.*



Other technologies, systems and services offered by the KEE Group.

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 - NuDisc® Single Piece Packaged RBC Treatment Plants
 - Modular Packaged RBC Treatment Systems
 - Large Diameter RBC Treatment Systems for site erection
- **Submerged Aerated Filters**
 - Single Piece EnviroSAF Systems
 - Modular Packaged EnviroSAF Treatment Systems
 - Large EnviroSAF in on-site constructed concrete tanks
- **Activated Sludge Systems**
 - Extended Aeration (EA)
 - Sequencing Batch Reactors (SBR)
- **Anaerobic Reactors**
 - Industrial Wastewater Treatment
- **Settlement Tanks and Packaged Pumping Stations**
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Treatment Plant Service

- **Service, Maintenance and Operations**
- **Replacement parts and associated products**

Telephone 0800 389 0457 for more information on these and other products and services developed and offered by the KEE Group.



Specialists in Domestic & Industrial Wastewater Treatment

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