



Extremely low cost industrial wastewater treatment combining chemical free micro-flotation and electro-coagulation

(08 IL 80EP 27F4)



Abstract

An Israeli SME developed a wastewater treatment technique using a unique combination of micro-flotation and electro-coagulation technology enabling removal of most fats, COD (Chemical Oxygen Demand) and other contaminants while saving costs associated with use of chemicals. Site installations show significantly better purification results as compared to conventional solutions. Return on investment may be in 12 months. Partners are sought for commercial agreements and testing new applications.

Description

The Israeli SME presents a line of devices for treatment of industrial wastewater, using a unique combination of micro-flotation and electro-coagulation in a multichamber configuration. This combination makes it possible to remove most of the fats, COD and other contaminants – without adding chemicals such as coagulants, polymers etc. Micro-flotation is a novel development of the known "dissolved air flotation" - DAF method for treating wastewater. This new development has many advantages over the standard methods, both in efficiency, cost and overall ecological balance.

Present devices and systems for treatment of industrial wastewater use chemicals – coagulants, flocculants, sorbents – that cause agglomeration of contaminants and suspended matter in the wastewater; the resulting large flocs or agglomerates are removed by sedimentation and decanting or by filtration (usually pressure filtration). Additional equipment such as metering pumps (dosimeters) must be used to induce the exact quantity of additives into the influent water. Sometimes more chemicals (such as lime) must be added prior to filtration, in order to form insoluble flakes that can be filtered out. In all these methods, more chemicals are added to the water that must be removed and dumped, adding negative factors to the ecological balance. In many

cases the added chemicals change the characteristics of the sludge so that disposal is more difficult.

Innovations and advantages of the offer

This proprietary solution utilises a unique combined Micro-flotation / electro-coagulation technique in a multichamber configuration.

The main advantage of the solution is the extremely low cost per m³ of wastewater treatment while demonstrating significantly higher purification results compared to conventional methods. This is directly related to the concentration of pollutants, and needs neither metering pumps and controllers, nor human attention for the metering. Ions are released only enough to coagulate the pollutants. Low pollution wastewater results in lower consumption of electrodes and the overall cost is proportional to the pollution of water treated.

Existing installations have demonstrated clear advantages in areas where the water is contaminated by combination of organic, chemical and solid contaminants. DAF alone cannot cope with high chemical load; electric and electro-chemical methods are quickly clogged by the organic substances and fats. The combined technique overcomes both these problems. The solution also competes well also in other fields, where traditional DAF systems (requiring 10,000+ EURO worth of coagulants per year) are both less efficient and more expensive in operation.

Avoiding the use of chemicals saves, in addition to their direct costs, the need to purchase/maintain pumping and metering equipment/infrastructure, storage and transportation costs, as well as other overhead. On the other hand, the primary operating cost of the developed solution is the power consumption, which is very low.

As such, the significantly lower operational costs



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Technology Offer

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show an RoI (Return on Investment) of between 12 to 18 months depending on the application.

Current and Potential Domain of Application

Industrial wastewater treatment, especially where the water is contaminated by combination of organic, chemical and solid contaminants, such as in agro-food industries.

For further information (including IPR status)

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