ANAFIT®AC

The biological wastewater treatment process uses state-of-the-art anaerobic reactors for energy recovery.
Wastewater treatment processes will necessarily vary depending on the industry-specific composition and the degree of contamination of wastewaters. For wastewaters with mainly organic contents, an anaerobic wastewater treatment is often the best solution, since in addition to the cleaning performance the simultaneous energetic benefit is very high here. In a well-managed wastewater treatment plant with careful process control such as that offered by ANAFIT®AC, the wastewater constituents are converted back into energy. In certain sectors of the food and beverage industry (such as fruit juice production, starch production, breweries, malting plants), but also in the paper industry, as much as 90 percent of waste water constituents can be anaerobically degraded and converted into valuable biogas. In this process, the organic substances are reduced by anaerobic bacteria to methane gas in an oxygen-free environment. The central component of the ANAFIT®AC method used by us is a two-stage high performance EGSB class reactor.

Turning Your Wastewater into a Source of Energy

Many wastewaters are rich energy resources. The proven ANAFIT®AC process converts them back into energy in the form of biogas by using state-of-the-art EGSB reactors which achieve lasting environmental benefits in addition to high economic savings.

ANAFIT®AC – ecologically clean – economically advisable
Function of the EGSB Reactor

EGSB” stands for “Expanded Granular Sludge Bed”. The ANAFIT®.AC reactor works as an anaerobic reactor with a high content of granules. Its performance makes it particularly ideal for larger amounts of wastewater with high COD loads.

The EGSB methane gas reactor used by H+E operates in two stages. The two buffer stages create a controlled flow throughout the reactor area that is supported by an external recirculation. To set the desired reaction in motion, methane bacteria in the form of pellets are used in the reactor.

The wastewater is evenly distributed over the bottom of the reactor through an inlet system and then flows through a bed of granular anaerobic biomass. The pellets, with a diameter of two to four millimeters, subsequently develop by themselves. The anaerobic bacteria in the pellets convert the dissolved carbon in the wastewater into biogas, and the reactor quickly reaches its full capacity.

The multistage reactor design is specifically adapted to a high content of pellets. This allows for stable removal performance even at peak times. Unpleasant odour emissions are prevented by a closed construction.

The high efficiency of the entire process technology results in an abundant discharge of valuable biogas that can be used for energy. In addition, consistently only a small amount of excess sludge accrues – mostly in the form of pellets, which can be sold.
Methane bacteria react with the organic pollutants dissolved in the wastewater and set the process of biogas production in the reactor in motion.

Benefits

Compared to conventional anaerobic reactors, the advanced anaerobic systems of H+E such as ANAFIT®AC offer highest reliability and efficiency with a high volume turnover performance.

Optimised inlet system

Non-clogging gas collection and liquid discharge systems

Selective discharge of surplus sludge

Special solutions even for moderately lime-precipitating wastewaters

ANAFIT®AC accelerates the effective degradation of organic pollution loads even in confined spaces due to minimal space requirement.

Two three-phase separation systems ensure effective separation of waste water, biomass and biogas, and allow the reliable removal and conversion of 80 to 90 percent of the total COD load into high-energy biogas.

Selective recirculation reduces the use of chemicals for neutralisation.

Ecologically Valuable – Economically Advisable

The use of modern anaerobic reactors leads to permanent environmental relief through:
- A saving of 60 to 80 percent of the electricity demand
- Reduction of the biological excess sludge by 70 to 90 percent
- Production of biogas for heat and power generation
- Reduction of pollutant emissions and generation of CO₂ certificates

Take Advantage of Our Consulting Expertise

We always offer our clients the solution which is technologically and economically most viable for them, and which corresponds exactly to their needs. We use the entire know-how of all the used methods at our disposal from more than 30,000 plants built, and that makes us practice-oriented experts in the production processes in our customers’ businesses. This is how we make sure that we not only make a sizable contribution to business cost optimisation and economic use of water resources, but also contribute to massive energy cost savings and a significant reduction in emissions in their industry. We deliver optimal economic solutions based on in-house technologies – individually planned and constructed turnkey plants, from the planning of the biological process to the implementation of the process stages starting with the solids inlet filter and ending with the reactor, and even including an integrated biogas cogeneration.
The ANAFIT®.AC process employed by H+E is particularly suitable where effluents contain a high proportion of organic waste. This is primarily the case in the food and beverage industry, especially in breweries and fruit juice production, as well as in fruit and vegetable processing. Valuable biological loads in the effluent also accumulate in the potato-processing industry, as well as in companies that manufacture starch products or yeast.

Industrial wastewaters with high organic load proportions such as those found in food technology are a rich energy resource. Used properly, this contributes significantly to energy cost savings.

Here the most important factor is not only the COD concentration, but also the specific content of nutrients, solids, fat, sulphates and toxic residues. This calls for individual solutions.

Taking into account all relevant aspects, we develop the ecologically and economically most appropriate plant. Usually it takes twelve months from the first rough planning of a comprehensive project to the turnkey handover.

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<th>Client</th>
<th>Place</th>
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Further available process technologies

**BIOFIT®.N**

ANAFIT®.AC wastewater treatment is ideally situated between upstream acidification and downstream BIOFIT®.N treatment for safe removal of nitrogen and the residual organic contaminants by nitrification/denitrification in an aerobic stage.

**BIOFIT®.M**

BIOFIT®.M membrane bioreactors guarantee reliable wastewater management even under difficult conditions. Their advantages are high operational reliability, for example low flow conditions, and in the extremely compact and space-saving design.

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