Clean Solutions.

Wastewater

Biosolids

Air

FUCHS

FUCHS
traditionally innovative

Pristine Environment

Over recent decades, protection of the environment has become one of the most pressing issues of our time. At the same time, the drive to achieve this has yielded one of the most innovative and forward thinking branches of business enterprise. The complex field of environmental technology demands the highest skills in innovation, engineering and workmanship, both in concept and in practice.

Clean Solutions

FUCHS have taken up this complex challenge and have built up an outstanding tradition based on high quality, that has gained them a worldwide reputation as one of the foremost environmental enterprises. The focus on the complete picture of each application, the thorough commitment, the use of the immense wealth of experience and know-how of a diversified team of engineers, technicians and craftsmen and the ongoing desire to tailor solutions to meet clients' needs have all led to FUCHS' ongoing success worldwide.

Ambitious Prospects

With four decades of continuing success and development, FUCHS is reaching out to the future. By advancing proven technologies and by developing new processes, by enhancing the expertise and skills of engineers and technicians, and by constantly adapting to the commercial and ecological demands of one of the most rapidly-changing industries, FUCHS will strive to meet future challenges by maintaining its tradition of innovation.

FUCHS head office with test facilities

2008 Over 2,500 reference plants. Worldwide representation.

2005 ATAD AIC: enhancing biosolids treatment to a new level.

1999 FUCHS Aerators for the first treatment plant in the city of Dubai (UAE).

1990 ATAD-process approved by the US Enviromental Protection Agency.

1987 Development of the first FUCHS Biofilter for odour control.

1982 Leonhard and Martin Fuchs assume management responsibility for the Company.

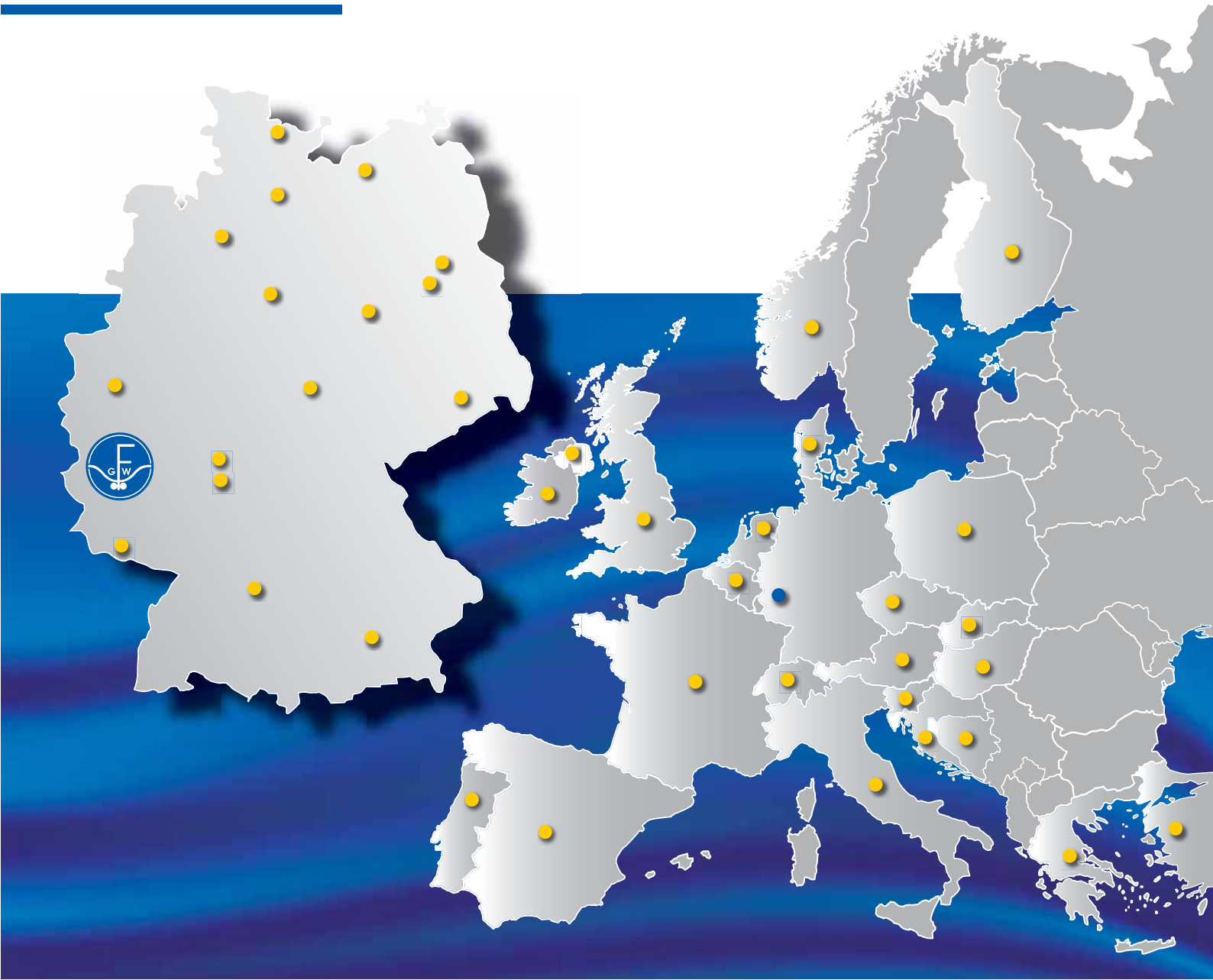
1977 First “greenfield” wastewater treatment plant, using the FUCHS ATAD-process and FUCHS Spiral Aerators in the activated sludge basin.

1974 Establishment of Fuchs Gas- und Wassertechnik. Patent for the FUCHS Spiral Aerator.

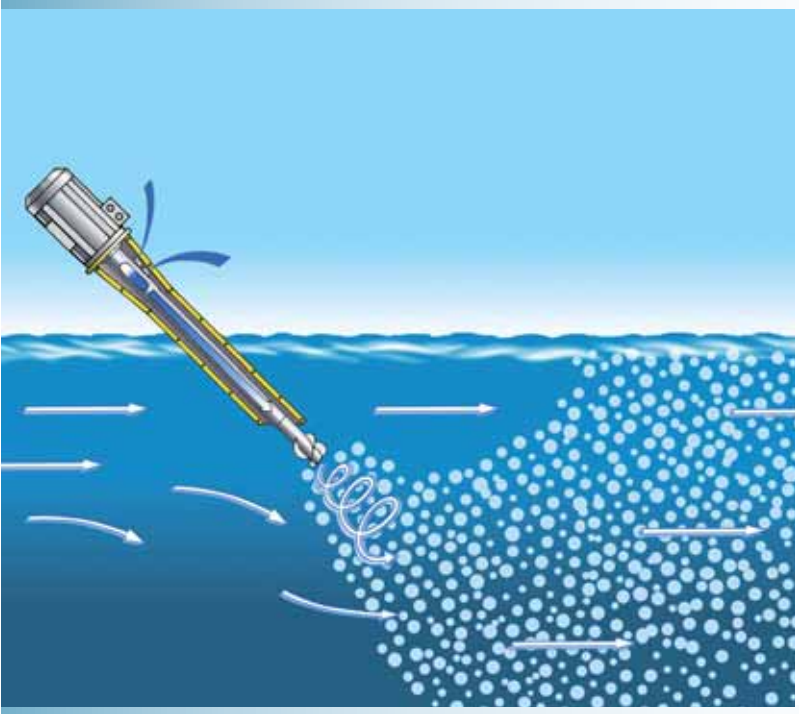
1971 First aerated lagoons for the food industry.

1968 Patent for the FUCHS CENTROX Aerator. Discovery of the phenomena leading to the ATAD-process.

1965 Hubert K. E. Fuchs begins developing self-aspirating aerators.



FUCHS Aerators



Principle of FUCHS Aspirating Aerators' dual performance: fine bubble aeration and strong directional current

FUCHS Spiral Aerator

The Spiral Aerator is well-known, being the original FUCHS Aspirating Aerator, proven in the field for more than 35 years. It embodies the highest quality standard of wastewater management in its class. Thousands of units in hundreds of applications worldwide prove the ongoing success of this robust and reliable aerator.

OXY*STAR* Aerator

The OXY*STAR* Aerator is the latest in the continuous development of FUCHS Aspirating Aerators. This outstanding unit with its high aeration efficiency and mixing capability has been designed and adapted to meet the most stringent and challenging requirements of today's international markets.

Sophisticated Design

The FUCHS Spiral Aerator and the OXY*STAR* Aerator are used primarily to aerate and mix activated sludge tanks and wastewater lagoons. The units are designed to provide the highest aeration efficiencies and mixing capabilities in their class, whilst requiring no regular maintenance. All materials used are resistant to corrosion, with the immersed parts being made from stainless steel or fibre-reinforced plastics. The sophisticated design with no immersed seals, bearings or gears, requires no regular maintenance work. High production standards and constant testing ensure the outstanding performance of FUCHS Aspirating Aerators.

Fine bubble plume created by FUCHS spiral propeller

OXY*STAR* Aerator on floats

Unlimited Flexibility

FUCHS Spiral Aerators and OXY*STAR* Aerators can be mounted on sturdy and strong floats or by means of highly adaptable mounting brackets. Using these versatile but simple modes of installation, FUCHS Aspirating Aerators can be installed in almost any tank or lagoon configuration, ensuring the necessary aeration and mixing.

Combining Successes

By combining the strongly directional flow of FUCHS Spiral Aerators and OXY*STAR* Aerators with the vertical flow pattern of FUCHS CENTROX Aerators, the opportunities for maximizing aeration and mixing efficiency are virtually unlimited. The combination of these two distinct aeration principles provides FUCHS engineers with the perfect tools for tailoring a bespoke solution to each client's needs, the world over.

CENTROX Aerator

The CENTROX Aerator meets the specific needs of certain sites. A vertical shaft and specially designed propeller create a vertical flow pattern, thus aerating large volumes of water, sewage or sludge. The FUCHS CENTROX Aerator can be mounted on sturdy floats or by means of a highly adaptable mounting bracket. This widens the range of possible applications from large wastewater lagoons to deep or enclosed activated sludge tanks.

FUCHS CENTROX Aerator on floats

Municipal Wastewater

FUCHS Aerators on floats adapted to an oxidation ditch

Activated Sludge Plants

At the heart of most municipal wastewater treatment plants is the activated sludge process. The activated sludge process uses nature's highly efficient biological processes to remove nutrients and pollutants from wastewater in a controlled environment and on a much larger scale than occurs in natural bodies of water. The most critical requirement of the activated sludge process is the presence of oxygen.

Fulfilling the need

Providing this fundamental element requires both efficient aeration and mixing. FUCHS Aerators excel at providing each in ideal combination.

FUCHS Spiral Aerators ensure oxygen transfer and mixing in a circular activated sludge basin

Aerated lagoons with FUCHS Aerators blend in with the natural surroundings

Aerated Lagoons

The treatment of municipal wastewater in a well-designed aerated lagoon system is one of the most economically and ecologically effective methods. FUCHS Aerators are well-suited to this near-to-nature treatment process by combining and optimizing the functions of oxygenation and mixing.

Versatile by design

The option of installation on floats or by way of mounting brackets provides well-suited solutions for all configurations.

FUCHS CENTROX Aerators excel at efficient aeration without turbulance

FUCHS Aerators are renowned for their silent operation

Industrial Wastewater

FUCHS Spiral Aerators provide a reliable and robust aeration system in a highly-corrosive industrial wastewater application

Activated Sludge Plants

FUCHS Aerators are used to treat a wide range of industrial wastewaters. The corrosion-resistant design and use of high-quality materials ensure consistently high performance.

Versatile applications

From the biological nutrient removal requirements of the food industry to the high-strength effluents from sugar mills, to the challenges posed by the pulp and paper industry, and to the chemical oxidation of ferrous minerals in mine waters, FUCHS Aerators excel at the treatment of industrial effluents.

Chemical oxidation in a state-of-the-art treatment plant equipped with 36 FUCHS Spiral Aerators, providing perfect process control

Treatment of petro-chemical effluent in a large lagoon system

Wastewater Lagoons

With decades of experience in the treatment of large industrial wastewater lagoons, FUCHS Aerators can be adapted to meet any industry's requirements. From the sugar industry to the difficult petro-chemical industry, FUCHS Aerators benefit from the extensive knowledge acquired in numerous applications since their introduction in 1971.

Strongly directional flow pattern created in sugar mill lagoons by FUCHS Aspirating Aerators

Retrofits

Aerobic stabilization of sewage sludge in a former storm water tank

Versatile and Adaptable

FUCHS equipment is used extensively as a retrofit to existing plants. One of the major issues facing today's plants is the need to meet changing requirements and to adapt to new processes and treatment objectives. Due to the virtually limitless versatility of FUCHS Aerators and their fixation systems, a solution for almost any challenge can be developed. A major advantage of FUCHS retrofits is the fact that existing tanks or lagoons can be used. This minimizes the need for new capital investment.

Supplementary Aeration

The steady growth of communities, changes in production of connected industries and the adoption of new treatment objectives can alter the required design size and thus the corresponding oxygen demand considerably. FUCHS Aerators fill this gap and can provide additional oxygen to meet any shortcomings. Due to the highly versatile mounting systems, FUCHS can retrofit to tanks or lagoons of nearly any shape or size.

Retrofit for sludge stabilization in a converted storage tank

Sludge Stabilization

Changing loads or treatment objectives can influence the sludge age to outside of the range at which sludge stabilization is achieved. FUCHS can solve this problem with its unique CENTROX Aerator, which can be installed efficiently to existing tanks or lagoons. This allows sewage sludge to be stabilized with minimum effort and investment.

FUCHS Aspirating Aerators on floats meet the oxygen deficit of an inadequate aeration system

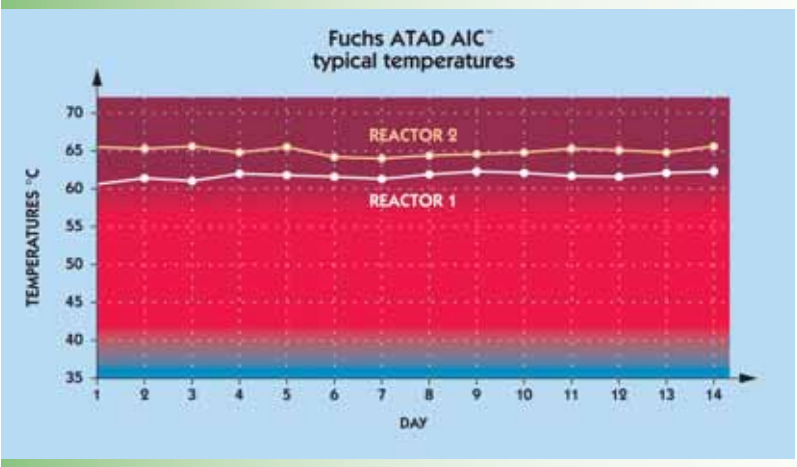
Replacing Aeration Systems

The ongoing maintenance and operational costs of old aeration systems is a major issue for many existing treatment plants. FUCHS' versatile range of aerators has been used in hundreds of plants worldwide to replace existing aeration systems. Almost every shape and size of tank or lagoon can be accommodated. The replacement can usually take place without interrupting the operation of the plant, with the only noticeable change being the positive effect on maintenance and operational costs, and the increase in aeration and mixing efficiency.

Replacement of old high-maintenance rotors with a FUCHS Spiral Aerator

Easily adapted to suit existing treatment tanks

FUCHS ATAD Process



Disinfection and stabilization achieved by maintaining constant thermophilic temperatures

New FUCHS ATAD AIC provides for shortest retention times by virtue of its advanced integrated concept

Class A Biosolids

Today, sewage sludge is no longer regarded as waste requiring disposal. By subjecting it to the right treatment, the immense fertilizer value of its components can be unlocked as a result of its being classified as Class A Biosolids.

FUCHS ATAD

The FUCHS Autoheated Thermophilic Aerobic Digestion (ATAD) process turns sewage sludge into valuable Class A Biosolids. The ATAD process simultaneously disinfects and stabilizes sludge. Operating temperatures in the thermophilic range (≈ 50 to 60°C) lead to short retention times of only 7 to 9 days. This considerably reduces the required reactor dimensions, energy consumption and capital investment.

Two-step FUCHS ATAD process guarantees Class A Biosolids

Creating Value

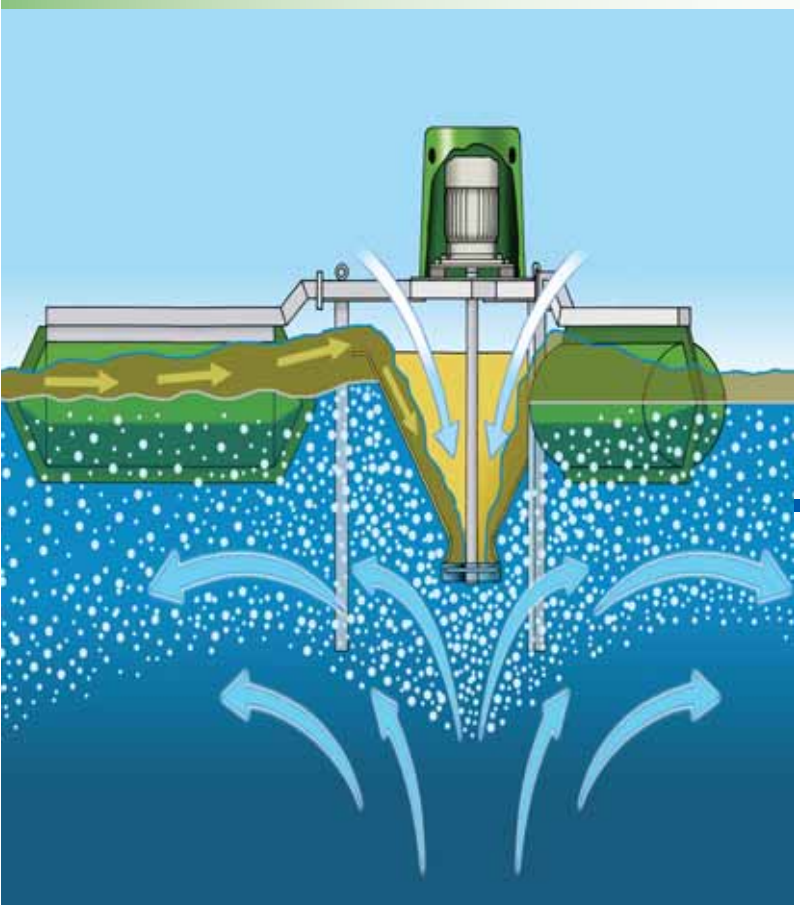
Class A Biosolids contain high concentrations of nutrients and other valuable components. The agricultural application of these highly-efficient soil additives and sought-after fertilizers completes the natural cycle by returning the biosolids to the environment whilst creating added value. In comparison to other thermophilic processes, FUCHS ATAD preserves most of the valuable nitrogen compounds. This helps guarantee commercial success by retaining the complete range of nutrients in the Class A Biosolids.

Tradition of innovation

Since the commissioning of the first ATAD plants in the 1970s, FUCHS have continuously improved the ATAD process. More than 80 FUCHS ATAD installations in Europe, America, Asia and Australia demonstrate their superiority, meeting the highest international standards. The new ATAD AIC™ combines the latest technological advancements with extensive experience with the complete biosolids treatment line, thus better meeting today's increasing financial demands.

24 hours creating value

FUCHS CENTROX Aerator with Foam Control



Principle of simultaneous aeration, mixing and foam control

Sewage sludge treatment made simple

The FUCHS CENTROX Aerator with Foam Control offers an alternative approach to sludge treatment. Based on three decades of extensive experience, FUCHS engineers have been able to overcome some of the major problems experienced in existing sludge treatment plants, with a single highly versatile and robust machine.

The FUCHS CENTROX Aerator with Foam Control simultaneously aerates the sludge, keeps it well-mixed and controls the foam layer. The special impeller draws the sludge from below and mixes it with both aspirated air and foam that flows into the intake cone. As a result the foam layer is reliably controlled, level with the top of the intake cone. Through this genius design, the foam layer becomes an integral part of the aeration process as the oxygen contained in the foam is forced back into the system. The FUCHS CENTROX Aerator with Foam Control makes sludge treatment both easy and affordable.

FUCHS CENTROX Aerators with Foam Control are used extensively for the aerobic stabilization of sewage sludge, as well as for treating liquid manure and wastewater with excessive foaming.

FUCHS CENTROX Aerator with Foam Control on floats controls foam layer in aerobic sludge stabilization

FUCHS Odour Control

The natural choice for your odour control

For more than 20 years FUCHS Biofilters have provided reliable and effective odour control for most sources of off-gas. Manufactured from high-quality materials, FUCHS Biofilters are designed to be both low-maintenance and easily upgradeable to meet changing requirements.

These features are achieved by using a modular design which focuses on minimizing space requirements and providing easy access to all key components. The completely biological treatment process utilizes naturally-grown and renewable materials as the filter media. FUCHS Biofilters therefore combine state-of-the-art engineering with natural biological processes to provide a truly environment-friendly odour control system.

Wastewater treatment works, ATAD sludge treatment plants, pump stations and landfill sites are only a few examples of the wide range of applications. FUCHS Biofilters continue to prove their outstanding effectiveness worldwide every day.

FUCHS Biofilters combine biological odour control processes with sophisticated engineering

FUCHS modular approach – easily adaptable to meet any fresh demands

That´s your way to a Clean Solution!

The Equipment

Aerators

- Spiral Aerator
- OXY*STAR* Aerator
- CENTROX Aerator
- CENTROX Aerator with foam control
- AERO*STAR* Aerator

High Speed Mixers

- TURBO*STAR* Mixer
- Submerged TURBO*STAR* Mixer

ATAD Equipment

- Spiral Aerator
- CENTROX Aerator
- Foam controller

Biofilters for Odour Control

- with integrated pre-scrubber
- with separate pre-scrubber

The Applications

- Municipal Wastewater
- Industrial Wastewater
- Activated Sludge Plants
- Aerated Lagoons
- Nitrification / Denitrification
- Aeration of Rivers and Lakes
- Balance and Equalization Tanks
- Neutralization of Alkaline Wastewater
- Mine Water Treatment
- Leachate and Landfill Lagoons
- Biosolids Treatment
- ATAD-process (Autothermal Thermophilic Aerobic Digestion)
- ATAD AIC™ (Advanced Integrated Concept)
- Odour Control

FUCHS

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