

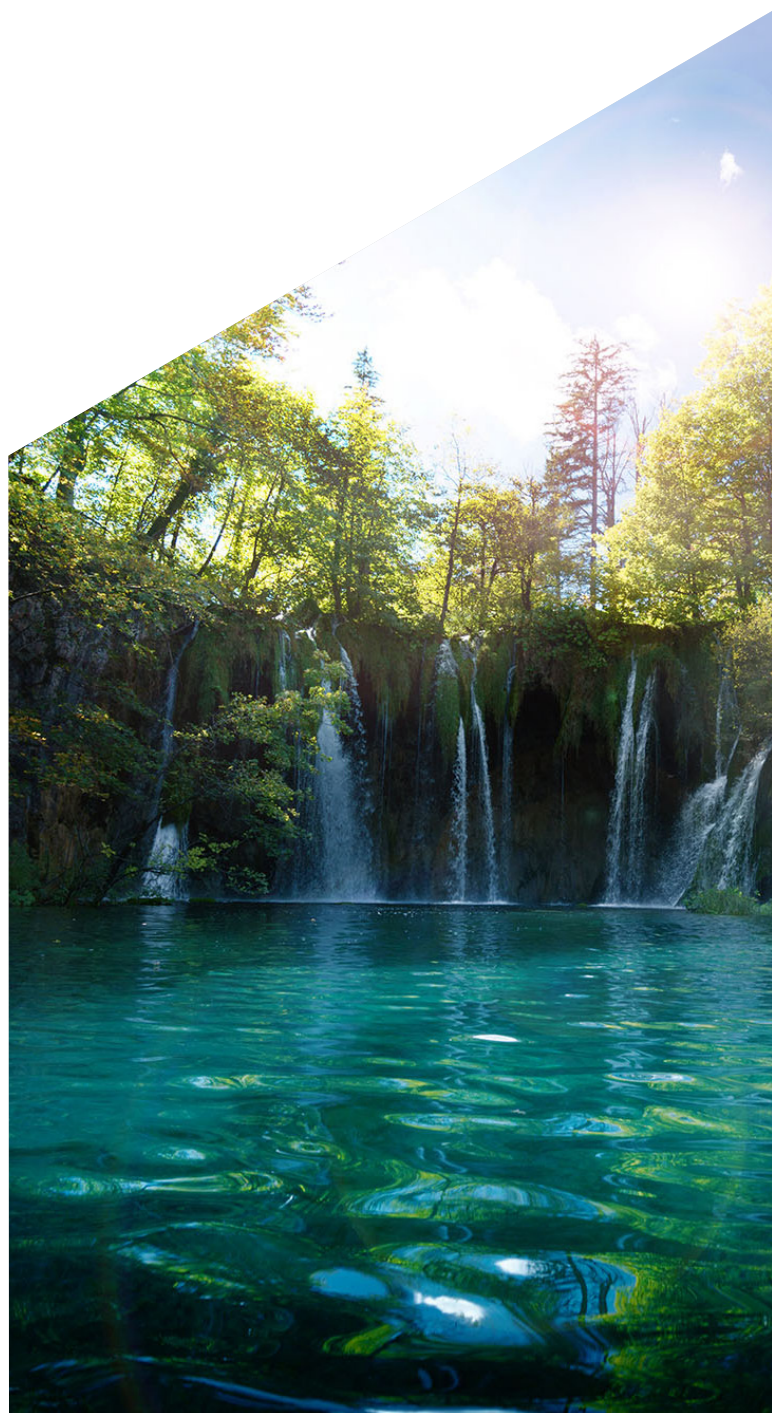


Environmental Experts.

PURPLE TECHNOLOGY FOR CLEAN WATER

Turnkey Solutions for Water Treatment

Analysis | Planning | Plant Construction | Start-up | Optimization | Maintenance



SERVICE PORTFOLIO

As specialists in industrial water treatment, DAS Environmental Experts offer a comprehensive range of technologies and services to reliably remove pollutants from industrial wastewater and ensure compliance with environmental regulations.

Our portfolio covers the entire lifecycle of a wastewater treatment plant – from laboratory testing and process development to engineering, construction, commissioning and long-term plant operation.

Whether new construction, plant expansion or process optimization, DAS provides tailored solutions to ensure efficient and reliable wastewater management.

Services

Wastewater Analysis	Planning & Development	Construction & Assembly	Optimization	Service & Maintenance
› Water analysis › Biological degradation tests › Precipitation/ flocculation tests › Sorption tests › Ion exchange (IEx) tests	› Technology selection & process engineering design › Mechanical & electrotechnical design › Software development › Feasibility studies › Concept evaluation & comparisons	› Project management › Site management › Assembly › Start-up	› Analysis & inventory › Automation › Modification of existing plants	› Customized maintenance › Plant & system services › Process engineering support (including via remote access)

Technologies

Mechanical Processes	Chemical-physical Processes	Biological Processes
› Rake/Sieving › Sand filtration › Sedimentation › Sludge Dewatering	› Precipitation & flocculation › Flotation › Ion exchange › Sorption › Oxidation processes › Membrane filtration (MF, UF, NF, RO)	› Moving Bed Biofilm Reactor (MBBR) › Trickle Flow Reactor (TFR) › Membrane Bio Reactor (MBR) › Sequencing Batch Reactor (SBR) › Activated sludge process

SOLUTIONS & PRODUCTS

Industrial wastewater treatment requirements vary widely depending on the industry and production processes. DAS Environmental Experts combine standardized products with customized engineering to deliver efficient and reliable solutions for every application.

Our portfolio ranges from individual treatment stages to complete wastewater treatment plants and integrated water management solutions for entire production facilities.



Flexible, Reliable and Cost-Efficient – Complete Wastewater Treatment Solutions with the MBBR Process

The Moving Bed Biofilm Reactor (MBBR) is a biological process widely used for industrial wastewater treatment. Microorganisms grow as biofilms on specially designed carrier material, providing a large surface area for the degradation of organic pollutants and nitrogen compounds.

Compared to conventional activated sludge systems, the process produces significantly less excess sludge while achieving comparable treatment performance.

The biofilm structure also makes the process highly robust and stable, even under fluctuating operating conditions.

MBBR systems recover quickly after operational interruptions and therefore provide a reliable and resilient solution for industrial wastewater treatment.

SALVINIA – Scalable MBBR Reactors

As specialists in biological wastewater treatment using the MBBR process, DAS Environmental Experts have developed the **SALVINIA** reactor series.

The innovative carrier material offers an exceptionally large specific surface area, enabling highly efficient biological treatment in a compact system design. The SALVINIA product line combines the advantages of standardized reactor designs with the flexibility

required for industrial wastewater applications. Available standard sizes: SALVINIA 70, SALVINIA 170, SALVINIA 470, and SALVINIA 1060



E-PLATE – Heat Recovery from Wastewater

The **E-PLATE** heat exchanger enables efficient cooling and heat recovery from wastewater streams containing solids.



Unlike conventional heat exchangers, E-PLATE is specifically designed for industrial wastewater applications where particles, fibers, or sludge would normally cause clogging.

By recovering heat from wastewater streams, the system increases overall plant energy efficiency and reduces operating costs while maintaining stable treatment conditions.

OTTELIA – Point-of-Use Wastewater Treatment for Semiconductor Manufacturing

OTTELIA is a compact wastewater treatment system designed for the removal of silicon dioxide (SiO_2) particles from semiconductor process wastewater, particularly from wet-chemical cleaning and etching processes.

The system combines lamella separation and fine filtration to efficiently remove particles and enable the reuse of treated water, for example in exhaust gas treatment systems.

Delivered as a pre-assembled plug-and-play unit, OTTELIA allows fast installation and reliable operation directly at the customer's site while supporting resource-efficient semi-conductor production.



EFFICIENT WATER REUSE AND RESOURCE RECOVERY

Industrial production requires large volumes of water for cleaning, cooling, chemical reactions, and transport processes. At the same time, environmental regulations, rising water costs and increasing resource scarcity are driving the need for more efficient water management.

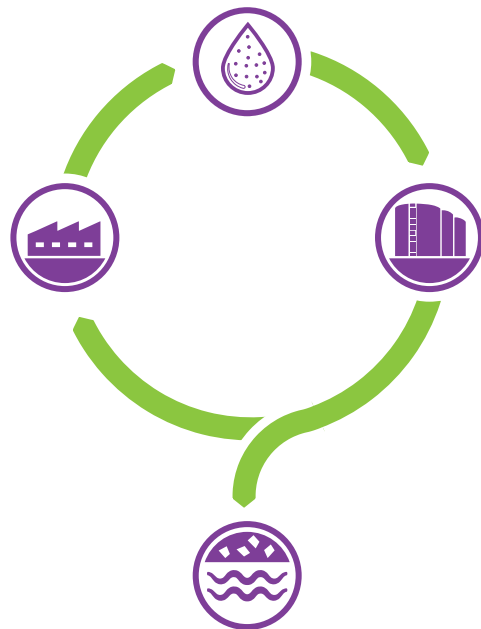
DAS Environmental Experts support companies in optimizing their industrial water cycles by treating wastewater and enabling its safe reuse within production processes.

Water Reuse and Resource Recovery

Treating and reusing process wastewater directly on site can significantly reduce the demand for fresh water and the costs associated with wastewater discharge.

At the same time, advanced treatment technologies make it possible to recover valuable materials from wastewater streams. DAS Environmental Experts develop systems that concentrate substances such as metals, rare elements or process chemicals, enabling material reclaim and reuse in downstream recovery processes.

This approach supports both economic efficiency and sustainable resource management.



Intelligent Water and Wastewater Management

Effective water reuse requires the combination of different treatment technologies, tailored to the specific wastewater composition and the required reuse quality.

DAS Environmental Experts integrate biological, chemical-physical and membrane-based processes into efficient treatment systems that reliably remove particles, organic compounds and dissolved substances.

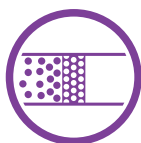
For specific applications – such as semiconductor manufacturing – DAS also develops point-of-use treatment solutions like OTTELIA, enabling efficient particle removal, water reuse and improved resource efficiency directly within the production process.



Membrane
Filtration



Filtration



Reverse Osmosis



Biological
Treatment



Chemical-Physical
Treatment

Clever Wastewater Treatment for Production Expansion

REFRES NOW S.A., one of Argentina's leading beverage producers, expanded its production capacity at its La Matanza site in recent years. The facility is now one of the largest soft drink production plants in Latin America. With increasing production volumes, the wastewater treatment system also had to be upgraded.

REFRES relied on the expertise of DAS Environmental Experts to design a suitable solution. The new plant was designed for a flow rate of 80 m³/h and a maximum COD

concentration of 7,000 mg/l. While such wastewater is typically pre-treated anaerobically, the customer requested a solution based exclusively on aerobic treatment.

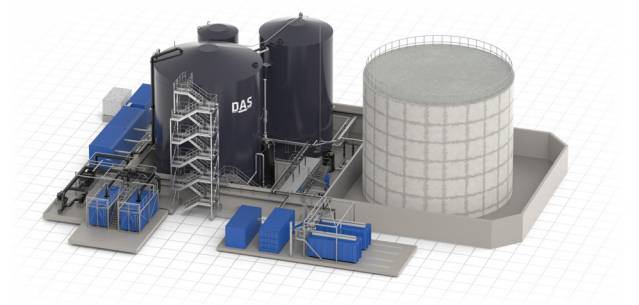
Considering the predicted daily COD load of up to 7 tons, the limited space available and the low sludge production required, DAS implemented an MBBR process at the La Matanza plant.

Modular and scalable: DAS Wastewater Treatment Plant for DSM Nutritional Products AG

Increasing production capacities pushed the existing wastewater treatment plant at DSM Nutritional Products AG in Switzerland to its limits.

The project posed several challenges. DSM operates the world's largest vitamin E production facility, resulting in wastewater characteristics similar to those in the chemical industry, while strict discharge limits comparable to the food and beverage sector had to be met. In addition, the treatment system had to be designed as a temporary plant that could be dismantled and relocated if required.

DAS addressed these requirements by designing and installing a two-stage MBBR plant within 14 months. Today, remote monitoring supports efficient operation, and the modular design allows easy expansion if production volumes increase further.



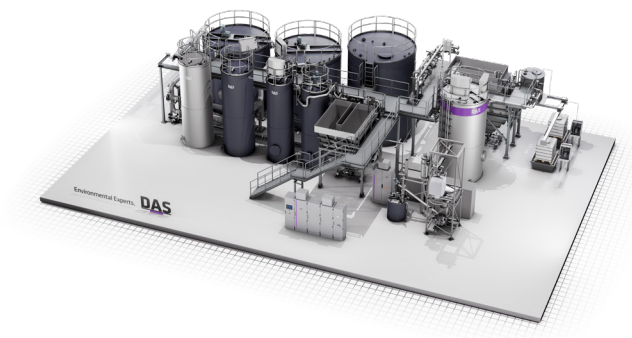
Advanced Wastewater Treatment for Semiconductor Production

A leading global silicon wafer manufacturer increased its production capacity by building a new semiconductor fabrication facility.

DAS Environmental Experts designed and implemented a dedicated wastewater treatment plant to treat the process-specific wastewater generated during wafer production.

The plant handles three wastewater streams: Weak Hydrogen Fluoride (WHF), Silica Waste Drain (SWD), and Weak Waste Acid (WWA). Each stream is processed in a dedicated treatment line with capacities of 40 m³/h (WHF), 40 m³/h (SWD), and 200 m³/h (WWA).

The plant was designed as a gravity-driven system, using hydrostatic pressure instead of pumps to minimize energy consumption. Lamella clarifiers ensure efficient solids separation, while the DAS control system enables reliable plant monitoring and control.



CUSTOMIZED SOLUTIONS FOR INDUSTRIAL WATER TREATMENT

Industrial processes generate complex wastewater streams that require reliable and efficient treatment solutions. **DAS Environmental Experts** design and implement customized systems for industrial water treatment and water reuse – tailored to the specific requirements of each facility and process.

Our solutions combine advanced process engineering with proven technologies to ensure regulatory compliance, operational reliability and long-term cost efficiency.

We support customers in a wide range of industries worldwide, including:



Semiconductor, Microelectronics & Solar



Chemical Industry



Food & Beverage



Cosmetics & Pharmaceuticals

EFFICIENT ENVIRONMENTAL TECHNOLOGY – MADE IN GERMANY

DAS technologies stand for engineering excellence, reliability and long-term performance. Our comprehensive technology portfolio enables the treatment of highly diverse industrial wastewater streams – from heavily contaminated effluents to water suitable for reuse.

With decades of experience in industrial water treatment, **DAS Environmental Experts** develop individually engineered solutions based on detailed process analysis. By combining proven technologies with innovative engineering approaches, we deliver robust systems that meet strict environmental standards and support sustainable industrial water management.

DAS

Environmental Experts.



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