

# ABIONIK News

No. 05



Wastewater treatment plant for highway service area



Treatment of wastewater from the highway



Tank storage depot for mine remediation company



Long-term growth and strengthened partnerships

**Our vision:** Improving life with clean air and water

**Dear employees,  
business partners and friends,**

in the reflective Christmas period, I particularly wish to take a critical look back at the year coming to an end. 2023 was again a year shaped by extraordinary circumstances that have challenged us all and demanded much of us.

Witnessing wars, conflicts and crises, as well as the enduring suffering of so many people makes us sad and bewildered, and our thoughts are wholeheartedly with those affected by the current conflicts. Peace and stability are among the most pressing tasks of our times.

The challenges linked to climate change and its associated global disasters with their many victims have marked the year in their own way too, and once again plainly demonstrated our responsibility to our planet and future generations. The path to greater sustainability and protection of the environment that we have embarked upon must be consistently pursued.

Despite the difficult circumstances this year, we have not only survived but also achieved significant progress – proof of our resilience and sustained commitment. The successful integration into our company of our long-term partners in safety engineering, the firm



Bischof GmbH, is one particular example of how in difficult times it is still possible to grow and develop. This milestone is confirmation of our shared values and aims, and of our ability to look positively to the future.

This successful acquisition has enabled us in the Abionik Group to further strengthen our market position and to incorporate new competencies into our portfolio, positioning ourselves even better for the challenges and opportunities of the New Year. A sincere thank you to all our members of staff, both old and new, without whose hard work and commitment this success would hardly have been possible.

Let us take this spirit of confidence and courage with us into the Christmas holidays, and take pleasure in the small things that enrich our lives. We can now look forward with hope to a New Year that will offer us space for renewal and positive changes.

I would like to express my sincere thanks to all of you for your tireless commitment, your steadfastness and loyalty as partners. You are the backbone of our company and the reason for our continued existence and growth.

## Our vision:

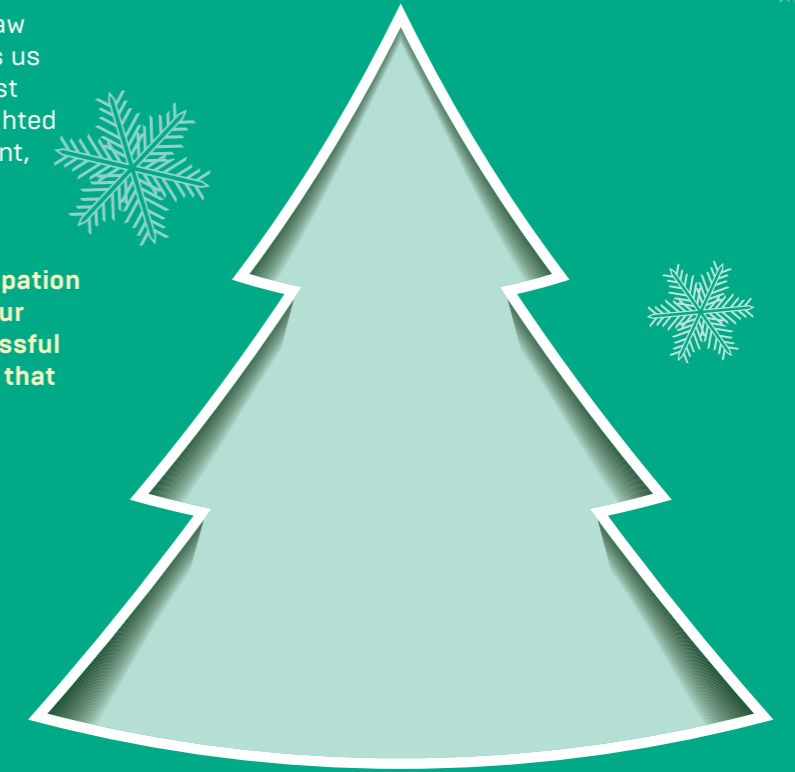
Improving life with clean air and water

Looking to the year ahead, I would like to draw particular attention to ifat 2024 which offers us an excellent opportunity to present our latest developments and achievements. I am delighted to invite you all to attend this important event, and to share our vision and solutions for sustainable wastewater management.

**With a feeling of gratitude and joyful anticipation for what lies ahead of us, I wish you and your families a peaceful Christmas and a successful start to the New Year. And of course I hope that you enjoy reading this issue.**

With sincere good wishes,

**Daniel Crawford**  
CEO ABIONIK



## Martin Systems PWC - Plant Wastewater treatment plant for highway service area

Mobility is crucial for Germany as an industrial location. The most important means of transport is still the car. The motorway network covers around 13,000 km and makes it possible to travel right across the country. Car parks and rest areas on motorways offer road users the opportunity to take necessary breaks. In addition to around 440 managed rest areas with service facilities such as petrol stations and service stations, there are around 1,500 unmanaged rest areas, known as PWCs, available to car and truck drivers.

Going to the toilet is also a basic human need when travelling. Many people are familiar with nagging children who must go to the toilet after a short time on holiday, or even the coffee that makes itself felt. But where to put the wastewater? A sewer connection is not always possible due to geographical circumstances. Decentralised concepts are therefore required to treat the wastewater.

Martin Systems has already supplied and installed two of these decentralised containerised plants. For many years, it has been operating one of these two wastewater treatment plants on behalf of the North Bavarian Motorway Authority at the Fronberg service area on the busy A3 motorway near Würzburg. Another plant is located on the A72 motorway near Zwickau.

A wastewater treatment plant is now also planned for the new A49 motorway in central Hesse (planned as a relief motorway for the parallel A7) at a new rest area near Homburg an der Ohm. Completion is scheduled for August and opening to the public in October 2024.



PWC Plant of Martin Systems on the A72

## Membrane Filters for Membrane Bioreactor (MBR) Application

For municipal, industrial and maritime sector

The plant is designed for an average throughput of 10 m<sup>3</sup>/d and a peak load of 1 m<sup>3</sup>/h. As the plant must drain into a low capacity receiving water, strict discharge limits apply, which can only be achieved in a multi-stage biological process and downstream absorption stage. The plant therefore consists of mechanical pre-treatment (screening), a three-stage activated sludge chamber consisting of denitrification and nitrification cascades, a filter chamber with

submerged ultrafiltration membrane filters and excess sludge storage. Membrane filtration enables high degradation rates and a high effluent quality of the treated wastewater to be achieved in a space-saving manner.



PWC Plant of Martin Systems on the A3

## Treatment of runoff water on the German BAB7 motorway in the Hamburg port area

Currently at various bridge section interfaces on the BAB7 in the port area of Hamburg, effective measures are being implemented to handle runoff water from the roads.

Because of the limited areas available in situ, amongst other measures being implemented are space-saving technical stormwater treatment systems, what are known as stormwater clarification tanks, with implemented inclined clarification modules from Steinhardt GmbH. These stormwater clarification tanks form the interfaces through which the major part of runoff from the motorway is discharged or fed in purified form into the Elbe river.

Inclined clarifiers are particularly suitable for the separation of fine particles in sedimentation tanks. Due to the (projected) settling surface area, which is multiple times larger than the surface area of the tank, it is possible to substantially minimise the surface charging of the stormwater treatment plant, making separation performance relative to fine particles significantly higher.

Fine particles are demonstrably contaminating to water courses, as due to their specifically larger surface areas, to a large extent they bind the pollutants occurring in wastewater to themselves. As a result of friction from tyres and brakes, as well as combustion processes, runoff water from roads predominantly contains pollutants such as PAH, PDH and heavy metals which are for the most part present in particle-bound form.

The use of inclined clarifiers is currently considered to be the best technical method of improving separation performance in sedimentation tanks. With inclined clarifiers, an annual average of up to 70% of the fine particle content in the wastewater are captured, which contributes to a relevant reduction in pollution of water courses.



View into the sedimentation chamber of a stormwater clarification tank for the K20 section of the BAB7 in Hamburg (before fitting the inclined clarifier module). In the background: tipping bucket for cleaning the base of the stormwater clarification tank

## Sustainable innovations made of stainless steel

Water Technology Specialist for Urban Water Management



Sedimentation surface on a site on the K20 section of the BAB7 in Hamburg



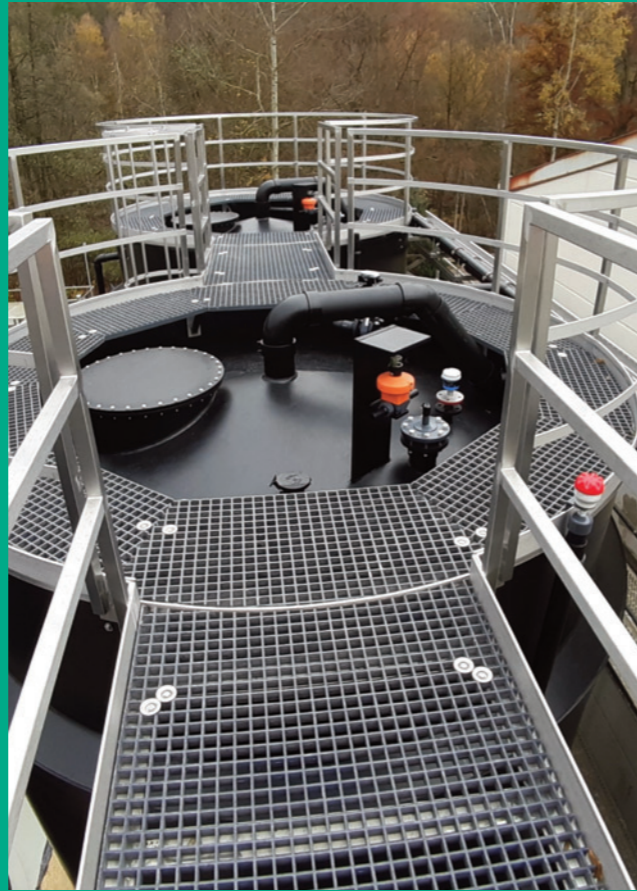
Bearing for inclined clarifier modules in a stormwater tank for the K20 section of the BAB7 in Hamburg

## Likusta builds new tank storage depot for mine remediation company

A mine remediation company with a public contract to make safe and recultivate the contaminated site of the uranium ore mine in Saxony and Thuringia placed an order with Likusta to replace the hydrochloric acid storage depot and the barium chloride tank of the water treatment plant of Schlema-Alberoda in Aue with a new construction.

The purpose of the water treatment plant is to handle contaminated mine water before it is discharged into the receiving water in the Schlema-Alberoda operating area. To treat the mine water, approx. 6,000 to 8,000 t of liquid chemicals per year (hazardous materials) are needed. To ensure uninterrupted operations, various liquid chemicals have to be stored. Compliance is required with regulations for the storage of hazardous materials to prevent contamination of the environment.

The contract included preparatory measures to drain, clean and dismantle the old tanks.



## Clear Choice for waste water and waste gas treatment



For the new replacement hydrochloric acid tanks, Likusta supplied three certified tanks with collection basins in accordance with the stringent requirements of the German Water Resources Act (WHG) and the "Regulation governing Facilities handling Substances Dangerous to Water (AwSV), to ensure that the substances stored are permanently prevented from contaminating ground and surface water. Each tank has a capacity of 50 m<sup>3</sup>. The tanks were equipped with inter-connected operating platforms on the tank roof reached via a central ladder. In accordance with regulations, the tanks are monitored by approved overflow protection mechanisms and leakage sensors. The scope of supply also included all pipework for the tanks.

The tanks were filled via a filling device supplied by Likusta and a common filler pipe. The outlets from the common filler pipe to the individual tanks can be shut off via pneumatic valves to control the process of filling the tanks.

During the filling process, acidic air is forcibly expelled from the tanks. This is taken via exhaust air pipes through an acid vapour separation system also supplied by Likusta, and subsequently released into the atmosphere. The acid vapour separation system, which is operated using process water, is activated when a filling process is started. The wastewater contaminated with acid is removed from the acid vapour separation reservoir by pumps and transported away.

The tanks' discharge pipes with pneumatic shut-off valves at the top were routed to the defined interface on the existing dosing equipment. In addition to the tanks for hydrochloric acid, a tank with collection basin for barium chloride was also supplied and erected. This tank, with capacity of 30 m<sup>3</sup>, also has an operating platform with ladder, the necessary safety equipment, a filling device and all the connecting pipework. All the work on this project was carried out on the active existing plant. Uninterrupted operation had to be guaranteed at all times.

We would like to express our thanks for this special contract, and to everyone involved for the smooth and enjoyable running of the project.

**FSM - Commitment to long-term growth and strengthened partnerships**

The company Bischof, a well-established and valued business partner, will in future be an integral part of our group of companies. This strategic decision follows the sad death of the company's founder, Rudolf Bischof. His legacy, and the continuation of his vision, have now been entrusted to our safekeeping by his son.

This new direction underlines our commitment to long-term growth. The integration of Bischof Abwassertechnik into the Abionik Group is a step forward for the whole company.

The Bischof Safety Engineering division will remain part of Rudolf Bischof GmbH and will continue to be looked after by Glauco Bischof, the son of the company's founder Rudolf Bischof.

For our customers, this takeover signals continuity and stability. Trusted contacts and fitters will remain unchanged for them, and will become part of a larger family. The merger guarantees not only continuation of a tried and trusted quality of service, but also promises an expansion of our offer.

The expectations for this future cooperation are high. Integrating the company Bischof means that new directions in innovation and opportunities for added value will open up, contributing to increasing our customers' satisfaction.

At this year's Weftec in the USA we were able to present our products for all aspects of wastewater management alongside our partners Saveco North America. The innovations presented at the trade fair met with lively interest and led to numerous valuable discussions between potential customers and our responsible staff members. Our committed managing directors Guido Frankenberger und Rainer Döll were there too, contributing to this success with their specialist knowledge and enthusiasm for our products and services. One outstanding event was the presentation of our innovative new sand and grit

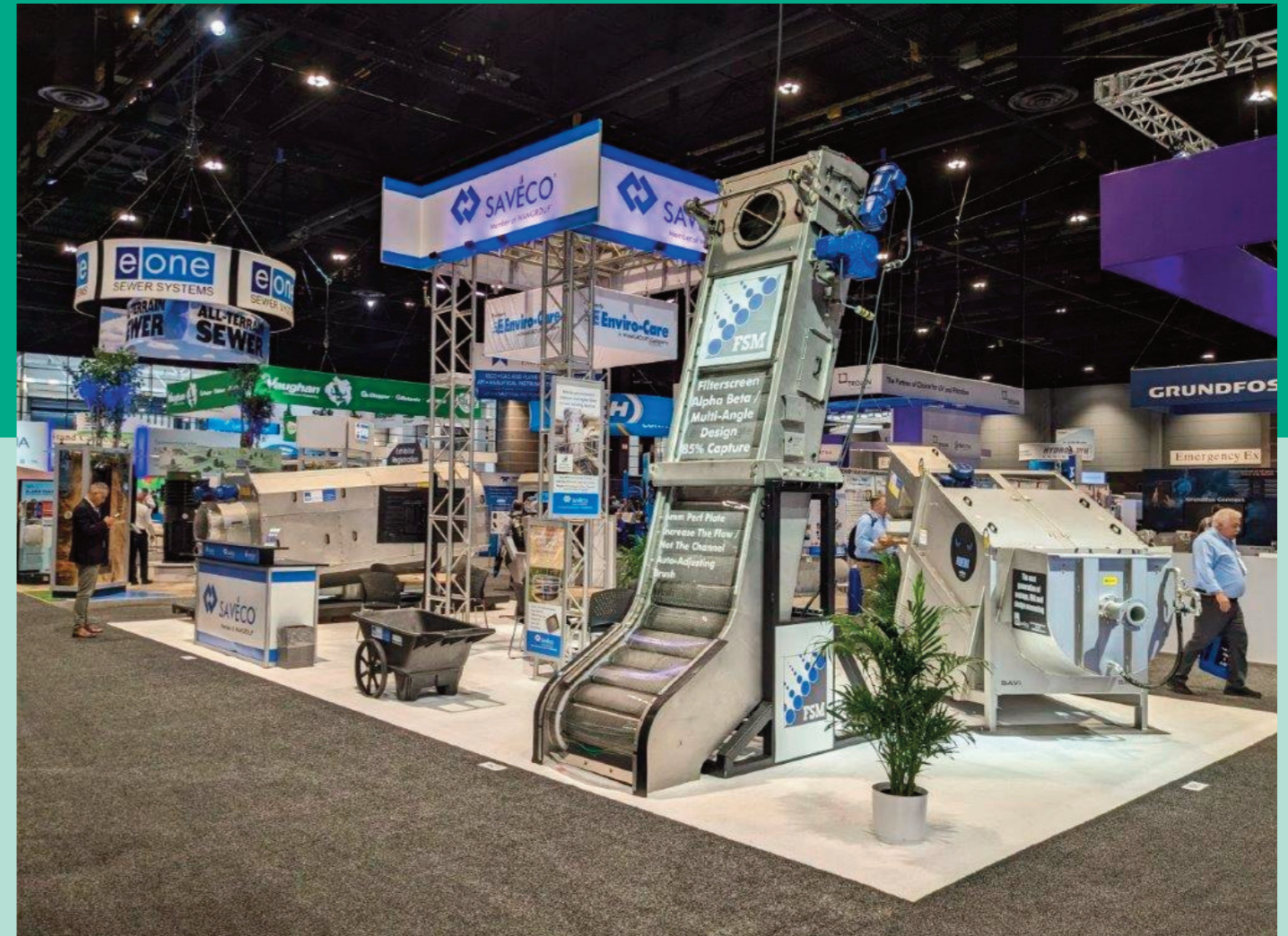
**The specialists for environmental technology**

Machines for water and wastewater treatment

basket for water treatment plants that has already achieved international recognition and can be described as a development milestone.

This invention is a bespoke solution for the widespread and complex problem of straw and grit deposits in water treatment plants which can cause major damage to them. Our development work, distinguished by its high level of efficiency and reliable functioning, provides a pioneering answer to this age-old challenge.

The overwhelmingly positive feedback we received during the event only served to strengthen our determination to make a major contribution with our products to extending the serviceable life of water treatment plants and increasing their economic profitability. We are proud of having firmly established our place in the worldwide water treatment industry. We also look forward to providing you with individual proposals, setting out how you can improve the efficiency and performance of your water treatment plant with our innovative products.



Joint stand at Weftec in the USA, 2023



As part of a generational change, FSM Frankenger GmbH, takes over the "Wastewater Technology" division of Rudolf Bischof GmbH.



**Our vision:** Improving life  
with clean air and water



**MARTIN Systems GmbH**

Friedrichstr. 95 | 10117 Berlin  
Tel.: +49 30 2005 970 0 | info@martin-systems.com  
www.martin-systems.com



**Steinhardt GmbH**

Röderweg 8-10 | 65232 Taunusstein  
Tel.: +49 6128 91 65 0 | info@steinhardt.de  
www.steinhardt.de



**LIKUSTA Umwelttechnik GmbH**

Gottlieb-Daimler-Str. 11 | 35423 Lich  
Tel.: +49 6404 91 00 0 | info@likusta.de  
www.likusta.com



**FSM Frankenger GmbH**

Vor dem Hohen Stein 1 | 35415 Pohlheim  
Tel.: +49 6404 91 94 0 | info@fsm-umwelt.de  
www.fsm-umwelt.de

