

wateralliance



# waterproof

**FIRE, PASSION  
AND TRADE**

**WIS AWARD  
2017**

**INNOVATION FOR  
NOW AND LATER**

**THE FAR-REACHING IMPACT  
OF WATER TECHNOLOGY**



CONTENT



**BRIGHT SPARK**  
and the universe of the flowerbulb



**ADS WATER SOLUTIONS**  
brings Organica to the Netherlands



**WATERLINK 2017**  
a retrospective in word and image



**WIS AWARD WINNER**  
Wafilin Systems



**BLUETEC**  
on the rise thanks to Forward Osmosis



**MEMBRANE FILTRATION**  
a regular topic

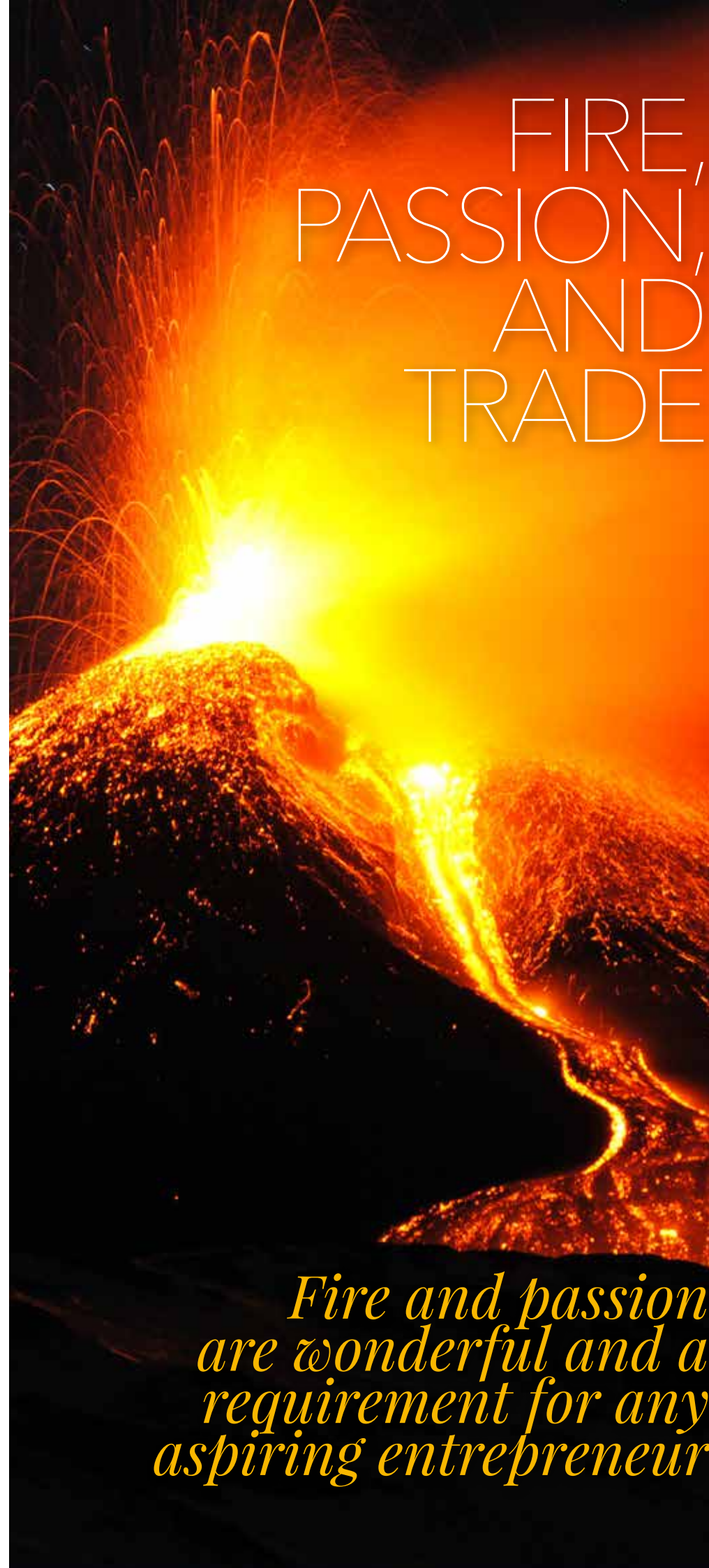
AND: INTRO BY HEIN MOLENKAMP..... 03  
 NEWS IN BRIEF..... 04  
 INFOGRAPHIC ..... 18  
 WATER CAMPUS BUSINESS CAFÉ..... 22  
 ISLE UTILITIES ..... 24  
 MEMBERS OF THE WATER ALLIANCE ..... 30

COLOFON

WaterProof is the magazine of the Water Alliance, a partnership between government, research institutions and industry in the field of innovative and sustainable water technology. From its base, the WaterCampus in Leeuwarden, the Water Alliance builds on the 'water technology innovation chain'; a process whereby new ideas from universities, laboratories and test sites are converted into worldwide marketable products. WaterProof provides regional, national and global information on developments, results and background in the field of water technology.



**Editor in Chief** Menno Bakker  
**Journal Management** Brenda de Jong,  
 Narvic Media & Communicatie | www.narvic.nl  
**Text Contributors** Casper Ferwerda, Mark Grupstra,  
 Menno Bakker and many others  
**Translation** Context Talen  
**Graphic Design** Jan Robert Mink | www.minkgraphics.nl  
**Cover Photo** Dik Nicolai | www.diknicolai.com  
**Photography** Frans Fazzi, Nico Pakvis and many others  
**Printer** Drukkerij Van der Eems



FIRE,  
PASSION,  
AND  
TRADE

*Fire and passion  
are wonderful and a  
requirement for any  
aspiring entrepreneur*

The smoke from our international WaterLink symposium has only just cleared, and we are already publishing the next issue of WaterProof, our international magazine. Where there is smoke, there is fire, and the symposium certainly sparked fiery passion. Take, for instance, the burning enthusiasm with which Olympic champion swimmer Pieter van den Hoogenband talked about his illustrious career; a glowing speech on ups and downs along the road to success, and on maintaining focus. It was also fantastic to see the passion with which the facilitators and participants of eight thematic sessions spoke and exchanged knowledge during WaterLink.

Fire and passion are wonderful and a requirement for any aspiring entrepreneur. Nevertheless, at Water Alliance, we still like to keep both feet firmly planted. For everything we do, we ask ourselves: "How is this getting us closer to our goal?" Our goal is: helping entrepreneurs to bring ideas and innovations to the market in order to create new business. That goal is prominently featured in this issue of WaterProof. It features news items and articles about Salltech, DMT, ADS Water Solutions, Afmitech, Wafilin, BLUE-tec, and more. These are all companies who have already found the road to national and international business success, but Water Alliance has many more members which are rapidly conquering markets. It is great to see it happen and be part of it to support growth. We will continue to write about it, so stay tuned!

Sincerely,  
 Hein Molenkamp  
 Managing Director





## De Gelder Cheesemakers: “Busting your butt is easy”

When working in a laboratory to discover the secrets of water technology, or selling the latest innovations at international trade shows, it can be easy to forget what a lot of water technology is all about: solving water shortages in the world by smarter use of water, and helping the industry to use water more efficiently, more sustainably, and at lower costs. Practical solutions can often already mean a lot to SMEs. An example of this is De Gelder Cheese Farm in the Frisian town of Tijnje, which makes the famous Tynjetaler Swiss cheese. The cheese is produced in a hyper-modern farm in the Frisian countryside. The farm is not hooked up to the deep tunnel sewerage system. Question: how do you properly dispose of your wastewater, especially when it contains a lot of extra fats, such as is the case in cheese making. “Water Alliance member Afmitech helped us with that”, says Anne Vogel. “Cleaning our systems is one of the most important parts of our process. We’re talking about food production, after all. We use around 12 cubic metres of water for cleaning every day. That needs to be disposed of. Afmitech installed the so-called Bever IIA water purification system for us. Our wastewater is now purified by bacteria, after which it is clean and pure and we can discharge it into the surface water.” Because Vogel’s children are also involved in cheese making, he is focused on leaving behind a healthy, modern, and sustainable company. “That’s my goal”, says Vogel. “It would be nice to have it making a nice return as well. Busting your butt is easy. The difficulty lies in making a great product responsibly, while also making a profit.”

[www.kaasboerderijdegelder.nl](http://www.kaasboerderijdegelder.nl)  
[www.afmitech.nl](http://www.afmitech.nl)



## SALTTECH WINS AWARD IN ABU DHABI

Water technology company Salttech, a member of the Water Alliance, won the Innovate@IWS innovation award in Abu Dhabi. Following a Dragon’s Den-style competition, during which Salttech’s Gerard Schouten gave a presentation to a jury of experts, primarily from the Middle East-the Frisian company won the Industrial category award at the International Water Summit.



From left to right: Hein Molenkamp, Piers Clark and Gerard Schouten

“It’s a huge boost and a confirmation of the power of innovation at Dutch water technology companies”, says Hein Molenkamp, who attended the International Water Summit (part of the Abu Dhabi Sustainability Week) on behalf of the Water Alliance and the Dutch water technology sector. “Salttech has a smart innovation with great potential worldwide. It is obviously becoming popular, as the company has won awards with it before. We think it could be used in many different industries.”

The innovation at the heart of all this is Salttech’s

DyVaR technology. It can be used to desalinate water without the use of membranes.

Founded in 2011, Salttech began on the WaterCampus in Leeuwarden. We used the various facilities and support programs at the WaterCampus to develop and upscale our technology says Schouten. The company is currently located in the nearby town of Sneek and also has a branch in Texas. A more extensive article on Salttech can be read in WaterProof 4, 2016.

## EUROPEAN WATER TECH WEEK LEEUWARDEN 2018

### CONNECTING GLOBAL WATER TECH HUBS

The global water technology sector is increasingly organized in hubs. The European Water Tech Week Leeuwarden 2018 (EWTW 2018) will connect these hubs in Leeuwarden, the United Nations Innovating City for water technology. At this special event, the sector will meet and inspire each other in the innovative climate of WaterCampus Leeuwarden.

Innovation, technology and policy leaders from companies, universities and governments get together during several inspiring events taking place from September 24 to 27, 2018.

EWTW 2018 will, among others, feature the Wetsus Annual Congress 2018, Water Alliance WaterLink2018 and a dedicated trade show. All of this will be accompanied by a unique cultural program linked to water, to celebrate Leeuwarden’s

official status of European Capital of Culture in 2018. The event will focus on the question how multidisciplinary cooperation can help to solve societal challenges around water. Issues like water scarcity, water pollution and water and health will be on the agenda, just like the water sector’s contribution to the circular economy. Viewpoints from businesses, science and politics will be brought to you by key-note speakers from all over the world. In interactive sessions and on the trade show floor, the topics will be elaborated further and business and development opportunities will be explored.

Don’t miss this unique event and stay up to date on the program at [www.watercampus.nl](http://www.watercampus.nl)



## RAINWATER AS DRINKING WATER

It was recently demonstrated for the first time in the Netherlands that purified rainwater can meet all the requirements imposed on Dutch drinking water quality. The results were obtained through a test performed at a rainwater system at the Dutch company ‘Mijn Waterfabriek’. Turning rainwater into drinking water is unique, as it was always believed that only official drinking water utilities would be able to meet the requirements in the Drinking Water Decree.

The requirements for Dutch drinking water have been established in the Drinking Water Decree of 2011.

Aqualab South, a joint venture between three Dutch drinking water utilities, conducted a test in a fully self-sustainable holiday home owned by Sustainer Homes in Northern Limburg mid-2016. The conclusion was that the purified rainwater met the drinking water standards from the Drinking Water Decree.

The rainwater was purified using a combination of membrane and UV technology. The system has

been successfully used in Germany for several years already. The results especially offer excellent options for decentralized water supplies. The expectation is that private individuals and businesses will be able to use the technology to become self-sufficient and to make their buildings completely water-neutral.



## Research: ‘Public-private partnerships work’

How do you boost the knowledge economy, and how do you narrow the gap between knowledge and the industry? In 2011, the so-called Centres of Expertise (CoEs) were created in the Netherlands to deal with such issues. The process was controlled by The National Science & Technology Platform (PBT). The PBT subjected the Centre of Expertise Water Technology (CEW) at the WaterCampus in Leeuwarden to a final audit late last year. The conclusion which can be drawn: public-private partnerships work.

The PBT is of the opinion that the CEW has proven itself to be an innovation accelerator for the industry. “The CEW has acquired a clearly defined position in the water technology education and research chain, and has demonstrated its added value to the top sector Water”, according to the audit report. “Students are enthusiastic about what they learn from the research assignments at the CEW. The assignments are taken from industry practice, and provide an innovation boost to education. The CEW has thus demonstrated that the concept of a Centre of Expertise as a private-public partnership between government, education/research, and industry works in practice.”

[www.cew.nl](http://www.cew.nl)



## WaterCampus Leeuwarden wins European cluster award



WaterCampus Leeuwarden, represented by Water Alliance, received the EU Cluster Partnership Award 2016 during the European Cluster Conference. The European Commission selected three finalists; the 350 European participants chose the winning project. Water Alliance's Energy in Water (EnW) project has been ongoing for 10 months now, and has already produced many successes. For instance, a partnership agreement intended to foster export has been signed with Morocco. Agreements with Tunisia, Brazil, Mexico, and Colombia will be finalized in early 2017. Clusters and SMEs have also already attended trade shows in Mexico and France. The award is yet another recognition for WaterCampus Leeuwarden as an international player making an impact in Europe.



Pictured: Bart Volkers - Project Manager/ Project Coordinator for EnW, linked to Water Alliance, among others, Eric Vos - Water Technology Program Manager for the Province of Friesland, Pieter de Jong - EU WaterCampus Representative.  
Not pictured, but actively involved: Jouke Smid - Water Alliance project assistant

## WILMA MANSVELD: CHAIR OF THE WATER ALLIANCE SUPERVISORY BOARD

Wilma Mansveld was appointed chair of the Water Alliance Supervisory Board in early 2017. She succeeds ex-King's Commissioner John A. Jorritsma, who held the position of chair since the organisation's establishment in 2010 and became the mayor of Eindhoven recently. At the same time as Mansveld, Erwin Dirkse joined the Supervisory Board as the industry representative. Dirkse is the managing director and owner of DMT (headquartered in Joure).



photo: Jaap Spieker

Wilma Mansveld (54) was the State Secretary for Infrastructure and the Environment for the Dutch government from November 2012 to October 2015. Before that, she was the Provincial Executive (PvdA) for the Province of Groningen. On 1 March, 2017, she will become the new director of the Safety Region Groningen.

Erwin Dirkse is the managing director and owner of DMT. He will be taking over the position from Flip Kwant (managing director of Landustrie, Sneek). Dirkse is also an active member of the Northern Innovation Board and chair of Envaqua, the industry association for environment and water technology. DMT is a fast-growing Dutch company, headquartered in Joure and on the WaterCampus in Leeuwarden. DMT is the global leader in upgrading gas and biogas with membrane technology.

## IN THIS EDITION: THREE 'HUNDRED PLUS' MEMBERS



Frank Akkerman (l) and Mateo Mayer

The Water Alliance reached a milestone near the end of 2016: in December, the number of Water Alliance members passed one hundred. "That is most definitely a milestone", says director Hein Molenkamp enthusiastically. "Of course, it's only a number, but it is somewhat symbolic of the volume that this sector represents in the Netherlands, as well as the fact that there are many companies which place value on presenting themselves on the national and international markets with greater strength and efficiency through our alliance." Because three companies signed up at pretty much the same time, Molenkamp is naming all three: AquaColor Sensors, ADS Water Solutions, and Blue-tec. The latter two are portrayed elsewhere in this magazine. The first was already portrayed in the previous issue of WaterProof. "Chickens drink water, which comes from pipes", explains business owner Frank Akkerman. "But the length of the pipes,

combined with high temperatures, can quickly result in biofilm formation. In short, pollution. I wanted to develop something cost effective to solve that. I got in touch with Mateo Mayer through Wetsus, and it clicked immediately. Within half a year, we had developed a so-called spectrophotometric sensor which can monitor water quality inline (in the pipe, Ed.) and in real time."

The company's innovation is proving popular, as evidenced by the fact that AquaColor Sensors was selected as runner up during the WIS Awards (see elsewhere in this magazine). It is an honourable achievement, and it allows the company to participate in the WaterCampus Business Challenge 2017.

[www.aquacolorsensors.nl](http://www.aquacolorsensors.nl)

## Membranes

Leeuwarden was the meeting place for international membrane specialists in early February. The EDS/Wetsus Congress Membranes in the Production of Drinking and Industrial Water was held in De Harmonie theatre in Leeuwarden. EDS stands for European Desalination Society. Together with scientists, the membrane sector is constantly looking for innovations. The key question: how can we make even better membranes, as well as: membranes capable of filtering substances from water which were previously impossible to remove.

Membranes are also used to desalinate water. The most common method used for turning seawater into drinking water uses a membrane that allows water to pass, while blocking the salt. This method is quite energy-intensive, however. That is why Wetsus is focusing on an alternative for desalinating water, using electricity. The study received special attention during the congress.

*'High and fine literature is wine, and mine is only water; but everybody likes water.'*

Mark Twain (1835- 1910)

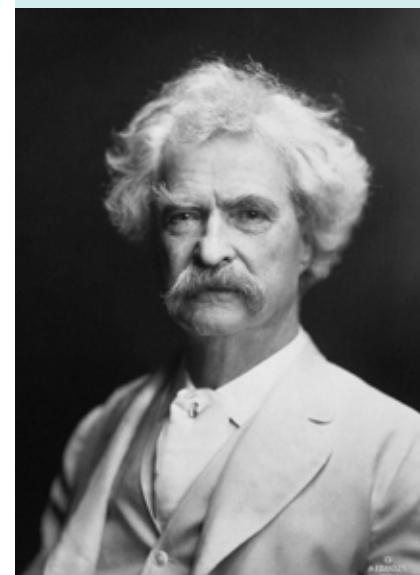


Image: Wikipedia





Maurice Tax with Cora Uijterlinde, research manager at STOWA, at WaterLink 2016

# Bright Spark steps into the universe of the flower bulb

morning. So I taught myself to write in the dark using capital letters." A recent flash of inspiration that Tax recorded in his idea book is a detection system for drones. "Via this radar application, drones receive a signal when another drone is within a fifteen-metre radius. Right now, we are working out another application with an intern."

*'I really want to help people. The United Nations was my first big customer'*

## Flower bulbs

Last year, 2016, was an good year for Bright Spark. "Not only did our turnover double again," Tax says, "but we also found attractive new partners. For example, an exclusive collaboration got started with the Dutch flower bulb industry and Wageningen UR. Via a project called 'The New Processing' we are coming up with a new method for processing and disinfecting flower bulbs. With it, we will be helping two hundred lily growers and three thousand tulip growers. We want to introduce the sustainable system in 2017, and implement it on a large scale in the near future."

## Company move

All this creativity and drive has led to strong growth in Bright Spark over the past years. There are now ten staff members. "We've grown out of our current location", says Tax. "The plan is to move to a more spacious premises in Sneek in 2018. Then I also want to move forward with an idea that I've been carrying around for a while: a think tank for kids up to eighteen years old to think about all kinds of solutions in relation to water."

## New markets for Dutch water technology

**Maurice Tax from Sneek is one of the Water Alliance's many "Gyro Gearlooses". A creative thinker who analyses problems quickly and comes up with solutions. He does this in many areas, including water treatment. Tax founded Bright Spark in 2002. This Joure-based company does business throughout the world. For example, with the sheikh of the United Arab Emirates.**

Starting this year, Bright Spark will be purifying the drinking water on some three hundred of the sheikh's luxury boats, using the newest version of the 2B Sure, one of its own inventions. Using this disinfection system, safe drinking water can be produced. "We started installing the 2B Sure on ships of the Emirates navy in 2014", says Tax. "Now we're moving on to the sheikh's fleet." Tax developed the 2B Sure, "in fact, nothing more than a PVC tube with electrodes", fifteen years

ago as a solution to the drinking water problems of third world countries. "I really want to help people. The United Nations was my first big customer, in 2004, when a tsunami hit South East Asia."

## Networks

Bright Spark customers can be found everywhere, including in South Korea. "We work there with the country's largest drinking water company, which serves some fifty million households.

That commission came out of an EU programme to help Asian countries with their water problems. To get those kinds of big commissions, being active in networks is really important. That's why I think it's a good initiative. Through matchmaking you come into contact here with other interesting companies. For us, that's how a partnership with the Hungarian company WaterScope was established. They are also involved in safe drinking water. Since last year, we've kept in close contact, and their algae detection machines have gone to South Korea for

testing. The technology is actually along the same lines as our project in South Korea; so similar solutions can apply to multiple problems."

## Bedside table

It all starts with an idea. That's why Tax always keeps a notebook on his bedside table. "I can sometimes think up something fantastic, out of the blue in the middle of the night. That has happened regularly. I don't want to wake up my wife, so I leave the light off. At first that meant I could hardly read back my notes in the



# Aan de Stegge brings Organica to the Netherlands

## WATER TREATMENT IN BOTANICAL ENVIRONMENT

With the addition of Aan de Stegge Construction and Mechanical Engineering from Goor as the hundredth member (together with Aquacolor Sensors and Blue-tec), the Water Alliance diversified even further in 2016. Founded in 1947, the family business shifted its focus to the water purification industry in the late '80s. They were successful, as ADS has since grown to one of the market leaders in the construction of drinking water and wastewater purification plants.

"ADS also has the ambition to develop and implement turn-key projects for the industrial market and new concepts for the communal market", says sales manager Christian Beuzel. "The ADS Water Solutions division was established last year for this purpose. We actively approach the industrial market together with our technology partners. We listen to their requirements and determine which solutions would work best for the customer."

### Organica

Organica is a concept which has great things in its future. "It was developed by a company from Budapest with the same name", says Beuzel. "We have acquired an exclusive license for the Benelux." Organica is an organic process based on the sludge-on-carrier principle. The carrier is comprised of plant and artificial roots. Purification takes place in compartments, allowing biomass to perform optimally,

and keeping the ventilation energy-efficient. The planters work as an odour filter. "Something extra develops above the water", explains Beuzel. "A botanical garden with lovely plants grows there. The same principle is used in Wildlands Adventure Zoo in Emmen; Organica is an improved version of that."

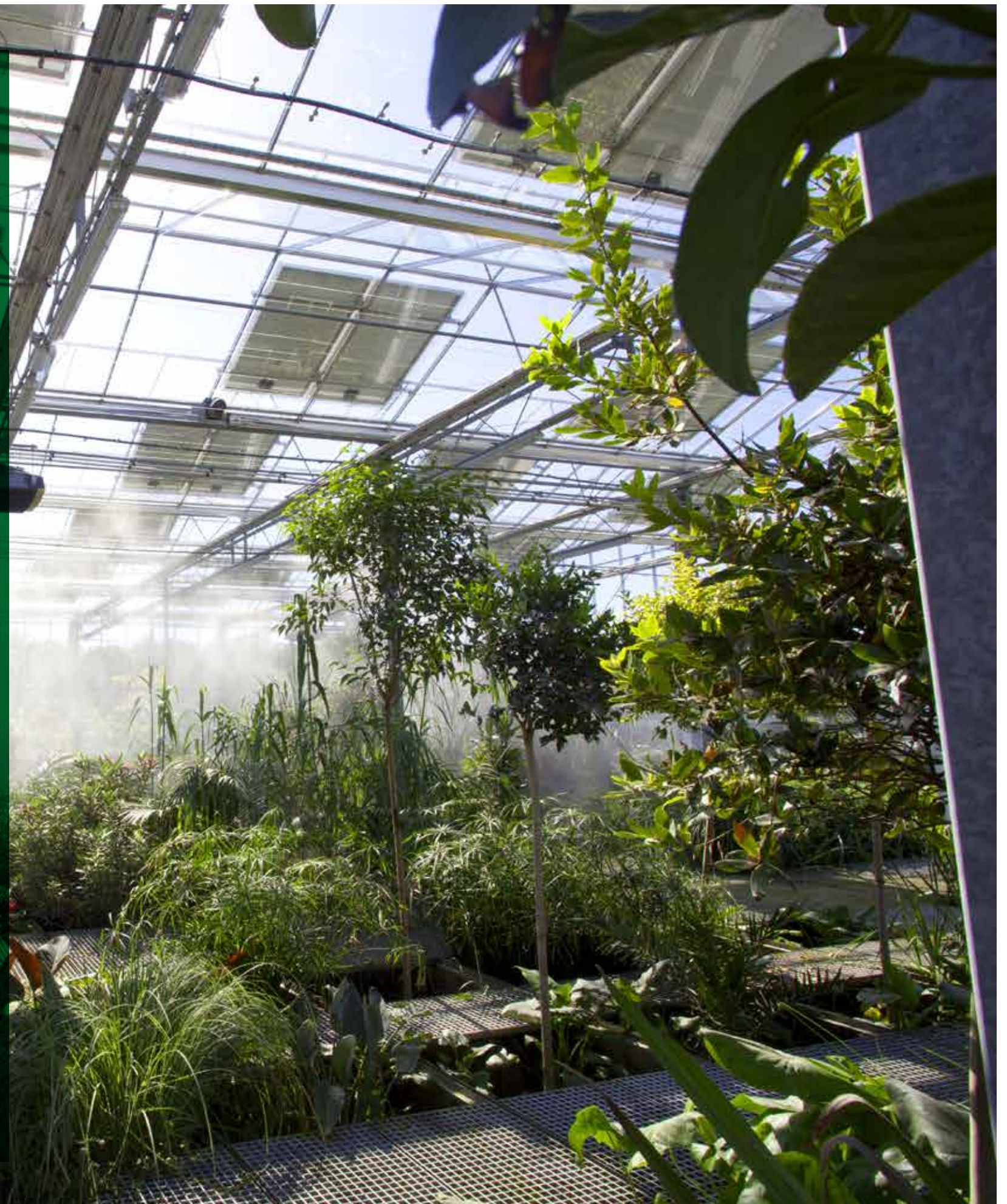
### Stand out from the crowd

Organica is quickly gaining traction internationally as well. "There is a lot of interest in Asia and the Middle East, in particular. There is a lot of urban development underway there, and this technology can be immediately implemented." According to Beuzel, the fact that ADS was able to secure a license from Organica has to do with ADS and the Netherlands' leading role in innovation in water purification. "We are already active in various Organica projects all over the country. With its botanical garden

experience, the Organica concept can help companies stand out from the crowd. It is also a great match for new residential districts and urban development, where there is no infrastructure available yet, or where the infrastructure is outdated. For financial reasons, governments want to treat water locally in those cases."

### Partnership

The Dutch interest became evident at the Industrial Processing trade show in Utrecht in October last year, which ADS attended together with the Water Alliance. Many large companies stopped in their tracks at the shared booth. "We saw the added value of the Water Alliance during the trade show", says Beuzel. "The Water Alliance also offers us the opportunity to work with other, complementary companies. We do not only want to take; we are eager to give as well!"





# Imagination, science and business meet at WaterLink

Water Alliance international symposium keeps on growing

*Believe in your imagination, mark dots on the horizon and work towards them methodically, while always continuing to think about how things could be different, better. These are just a few of the conclusions that can be drawn from the international WaterLink symposium held by Water Alliance on Thursday, 26 January, at the WTC Expo in Leeuwarden. At the symposium, former Olympic swimming champion Pieter van den Hoogeband gave an inspiring talk about his own illustrious career, and eight thematic sessions provided opportunities for representatives of the international water technology industry to gather and share knowledge. Wafilin Systems took home the WIS Award, the innovation stimulation prize in the water technology field.*

The company, which is based at the WaterCampus in Leeuwarden, won the prize for the innovation "Concentrating Milk". With it, dairy farmers can concentrate milk quickly and inexpensively right on the farm. That means big savings on transportation costs. Read more about it elsewhere in this issue. It was striking that not only the innovation was outstanding, but that Jos van Dalfsen of Wafilin himself was an extremely effective mouthpiece for the company, observed Andrew Walker of Blue Gold Marketing and the day's WaterLink chairperson. "There is no firm tradition of self-promotion and seeking out the spotlight in the water technology industry. But you saw in the WIS Award that the participants who do that best came farther."

Just before announcement of the WIS prize winner, Hein Molenkamp, Water

Alliance Director, presented a 2,500 euro cheque to the "Because We Carry" initiative. The project was set up by three young Dutch women determined to improve the living conditions of refugees on the Greek isle of Lesbos. Lauren Lavoo accepted the cheque gratefully. Her organization will invest the money in boilers for water, she said.

## WaterLink increasingly international

With a diversity of speakers and guests from no fewer than sixteen countries (including England, Germany, Italy, the US and China), WaterLink had a stronger international character than ever before. Leeuwarden's mayor, Ferd Crone, was pleased to report that the event's growth is set to continue, because in 2018, the year in which Leeuwarden will be the cultural capital of Europe, WaterLink will

be merged with the Wetsus Conference to become the "European Water Tech Week Leeuwarden" in September 2018. The initiators expect hundreds of international guests.

## Thematic sessions

Imagination, however, was also an underlying theme in the topical sessions which challenged guests to share thoughts on numerous subjects in the field of water technology. Eight topics were explored under the leadership of national and international experts: energy and water, control of blue-green algae, water monitoring techniques, "triple helix" collaboration (which is to say, collaboration between government, educational institutions and businesses), international marketing of water technology, recycling and water, festivals as living laboratories for innovation and building a circular economy in agriculture, with the use of water technology.

Director Molenkamp can look back on the symposium with satisfaction. "The goal of WaterLink is, as always, to inform and inspire, with a focus on business strengthening. Because that kind of inspiration leads to the best contacts. Like in other years, we've tried to facilitate that, with a programme that provides space for dreams and inspiration, but also opportunities for knowledge exchange and networking. Every aspect of that was successful. Furthermore, I was glad to see dozens of foreign guests at our symposium this year. We've got a great launching pad for our plan to take it to a higher level in 2018, in collaboration with Wetsus, during the 'European Water Tech Week Leeuwarden 2018'."

The following pages present a photo reportage of the event by photographer Jaap Spieker. Interested in a video report of WaterLink 2017? Click on Water-Proof's YouTube channel, or go to Water Alliance's Facebook page.













# THE WATER TECHNOLOGY INNOVATION CHAIN

The WaterCampus brings together a complete chain of innovation for water technology, from first idea, research, specialized laboratories, various demo-sites, launching customers to commercial international applications by commercial companies. Indeed from knowledge to business. It is driven by the idea that technological development and innovation is needed to develop new markets and create new business opportunities.





# WAFILIN SYSTEMS WINS WIS AWARD 2017

*Following an exciting finale with seven entries, Wafilin*

*Systems won the WIS Award (Water Alliance Innovation Stimulation Award) on 26 January for its innovation “Concentrating Milk”.*

*The innovation stimulation prize, which the Water Alliance awards annually, was announced at the international WaterLink symposium at the WTC Expo in Leeuwarden.*



Concentrating Milk is an innovation that allows dairyfarmers to concentrate milk quickly and inexpensively right on the farm. That means big savings on transportation costs. In addition, the farmer can reuse the residual water. As prize, Wafilin Systems receives a marketing and communications package for promoting the innovation, in the Netherlands and internationally if desired.

## Finale

The winner was decided in an exciting finale, in which 45 minutes of high-intensity “pitching” was followed by the moment of truth: the time for voting. Both the audience - made up entirely of international experts - and the jury, composed of Cees Buisman (Wetsus), Cora Uijterlinde (STOWA) and Willem Buijs (Hatenboer Water), could cast a vote. The jury and audience were not

*‘Wafilin Systems receives a marketing and communications package for promoting the innovation’*

in complete agreement on the winner, but Wafilin ultimately won thanks to its winning the majority of audience votes.

An honourable second place was reserved for Aqua Color Sensors, from entrepreneurs Frank Akkerman and Mateo Mayer. That made their company the runner up. Sponsored by Wetsus, the runner up may now take part in the March 2017 WaterCampus Business

Challenge free of charge.

The company demonstrated a system that can measure water quality in real time and autonomously administer a purification system. That innovation is particularly useful for the monitoring of long pipe systems, like those on farms, to prevent biofilm.

## Impressive

The other entries were impressive too. Nijhuis Industries presented the i-Dose: a device that automatically adjusts dosages of chemicals to the amounts necessary to purify water. Dutch Water Tech pitched the Procrate: an innovative, nature-friendly system to protect water plants from fish and birds. I-Real presented the LevelTrack1 LoRa datalogger, which can measure the quality of groundwater and surface water at a much lower price than its competitors. Patrick Sutman of Brightwork demonstrated the Sand-Cycle: a device that measures the patterns of movement of sand grains in a continuous sand filter for water purification. This makes it easy to determine if a filter is functioning properly. Finally, KNN Cellulose presented “Recell”: a method to recycle the cellulose in toilet paper and reuse it as a raw material, for example, in asphalt.

Next year WaterLink will be part of the even larger European Water Technology Week Leeuwarden. Companies with innovations are called on to register early for the 2018 WIS Award, via [www.wateralliance.nl](http://www.wateralliance.nl)

*[Note from the editor: an extensive article about Wafilin and “Concentrating Milk” can be read in WaterProof, issue 3, 2016]*





# innovation, for now and later

## New partnerships form at the WaterCampus Business Cafe

WaterCampus Business Cafes are designed to bring parties together, to share knowledge and get inspired. Late last year, yet another was in the planning, on the topic of the very newest water technology innovations, for now and later. That brought in no fewer than fifty registrations. The event can certainly be categorized as a success, for one because the various interactive rounds brought many businesses and government agencies closer together. WaterProof was there too, for a brief editorial update.

That there is still a lot left to do when it comes to dealing with water smartly and efficiently was emphasized by Paul van Eijk, lecturer at the Van Hall Larenstein University of Applied Sciences. "People say we are very water-minded here in the Netherlands, but if you look at how much deep-frying fat we dispose of down the drain each year, you have to conclude that even us, the Dutch, don't have it very instilled in our DNA. There's a lot left to be done."

Based on the Aquadruple Helix concept, in which government, education and business (the three pillars of the well-known "triple helix" model of collaboration, Ed.) collaborate in the physical living environment, opportunities are being created for

increased involvement -- especially for students, too -- in applied research. That means, research that responds to a real demand from the commercial sector or government and has practical application. According to Van Eijk, the water technology innovation ecosystem offers plenty of opportunity for that. Van Eijk is eager to get down to work with businesses and governments to develop a water-neutral apartment complex.

### Roles

Peter Luimstra, a senior advisor for the City of Leeuwarden, outlined various roles played by the city government: as property manager, as client (since existing relatively old buildings, for one, will have to be given a sustainability

make-over) and as facilitator/stimulator (offering facilities, brokering innovation and providing grants and subsidies). As an example he mentioned the company Hydrowashr, which won the Water Alliance innovation prize a few years back with a product that has since been used not only on the WaterCampus but also by the city services and at Blokhuispoort (a hotbed of cultural innovation).

Karel Veeneman, programme manager for innovation at Wetterskip Fryslân, emphasized that opportunities were ripe for the taking in the Dutch Province of Friesland too. Even just within his own organization. "To us, innovation is key. First, for the short-term benefit, for example, making outdated processes

*'talk about the interesting day lasted long among many of the participants'*

and systems cleaner and more economical. For the more distant future too: when you might be talking about much more radical changes to your systems. That is why we keep doing research and keep on experimenting. We have reserved €500,000 annually for it."

Brendo Meulman of DeSah sanitation specialists noted how fantastic it is that government and organizations like Wetterskip financially support innovative trajectories. Still, he said, the risks inherent to innovations are not yet sufficiently covered. "It is a very good thing that thanks to the government you can, as a business sector, get valuable projects started, but in the kinds of trajectories we are talking

about risks are higher than average. The question is who is willing to provide guarantees for those. Right now, the risks are often carried by the business sector itself, but that is irresponsible in many cases. Eventually a solution will have to be found for that problem, for example, some kind of national government fund." The Northern Netherlands Provinces Alliance (SNN) is an important facilitator when it comes to grants for businesses with innovative ideas in the three Northern provinces of the Netherlands. Paul Drent talked about that in his presentation.

### Business marketplace

At lunch there was plenty of opportunity for networking. Entrepreneurs had presented their innovations in a

number of areas, divided up into three categories: "water and energy", "smart and effective water chains" and "reuse of raw materials". Interest was so great that the hour and a half allotted for the business marketplace was too short for many of those present to get to speak to everyone on their list. Many follow-up meetings were planned that could potentially lead to valuable partnerships. As such, Gijs Jansen of Biotrack and Jan Melein of Hydrowashr immediately set up a time to sit down and continue their discussions together. In addition, after the afternoon Wetterskip Fryslân decided that it would work to create greater water awareness among the general public, by demonstrating what it means in real-life terms when water is polluted or when we don't have enough clean drinking water available.

After lunch, a number of propositions were discussed in an interactive session. The topics "launching customer", "grants" and "collaboration" were a few of those brought up. The overall conclusion was that a launching customer can provide enormous support to a project and even accelerate it by giving feedback and being closely involved from an early stage. Furthermore, many business people were pleased to take note of the opportunities available with regard to grants, and nobody can succeed without partnerships. "So you can share your knowledge and expertise", explains Gijs Jansen of Biotrack.

### Happy hour

The Business Cafe was closed with a happy hour for informal networking, where talk about the interesting day lasted long among many of the participants. The Water Alliance will be following and stimulating the partnerships that the afternoon produced.



Isle Utilities combines demand for technology with international supply.

*“There are so many people who invent great things.”*

“Governments and universities conduct a tremendous amount of research on water technology solutions”, says Ignaz Worm, European Managing Director at Isle Utilities. “A lot of money goes into that, while there are already many commercial solutions available to use straight away. The problem is often that the products have not yet proven themselves, and using them therefore comes at a risk. Additionally, manufacturer and end user are not always able to find each other. That is where Isle Utilities comes in.”



With offices in England, Australia, the USA, Singapore, Abu Dhabi, and the Netherlands, the international company focuses on matchmaking between water technology developers and end users. Since late 2016, Isle Utilities also has an office at the WaterCampus in Leeuwarden. “We have a forum called Technology Approval Group (TAG), for which we comprise a list with ten bite-sized innovation summaries every four months. The member water and wastewater companies can then specify

which innovations potentially interest them. The five innovations that receive the most votes are eventually presented at meetings which we organise three times a year. We are now getting so big that we are considering the organisation of separate European and British TAG forums twice a year. Approximately 150 drinking water and wastewater companies/utlities are currently members of TAG, and that number is still growing.”

### Spreading the risk

“We also offer consultancy in addition to matchmaking”, continues Worm. “Many countries are currently working on their water pipes, which are often due for replacement. You could replace entire pipelines, because the manual states that they have reached their end of life. However, a lot of companies are now using inspection robots to inspect pipelines, which could reveal that a pipeline can still be used for another ten years, or that only part of it needs

replacing. That can end up saving a lot of money.”

### Acquired knowledge

“For example, Evides, drinking water utility in Rotterdam, was looking for a way to inspect a pipeline with a diameter of 800 mm. That is quite a sizeable pipe. The casing was made of steel, with a concrete coating inside. The coating makes it very difficult to measure the condition of the steel. Evides then found Pure Technologies, a

company which can inspect pipelines. It would be a shame to only put the acquired knowledge to use for one pipeline for one company. It was also an expensive job. We circulated the idea among our members, to generate interest. We ended up with sixteen sign-ups from all over the world. They shared the cost, as well as the risk. In the end, everyone was able to benefit from the results; it's sort of like crowdfunding. Together with six international drinking water utilities, we have now created an online platform containing all existing condition assessment technologies, where water companies can exchange experiences: the CATwizard.”

*“We ended up with sixteen sign-ups from all over the world”*

### Active

“Our members currently mainly consist of water utilities, although large industrial end users such as Coca Cola, Procter & Gamble, and Shell recently joined as well. We now want to focus more on waterboards. We are highly active in our own country, but our office is for all of Europe. It would be nice to become more active in countries such as Italy, Germany, and the Scandinavian countries as well. We may hire people in those countries to reinforce our team.”

[isleutilities.com](http://isleutilities.com)



# BLUE-tec on the rise thanks to Forward Osmosis



## Filtration and concentration of complex wastewater

BLUE-tec, from Renkum, is a specialist in membrane contact processes, including Forward Osmosis. In contrast to conventional membrane filtration, this concentration technology is fairly insensitive to fouling. The technology allows the extraction of clean water and a concentrate at the same time during wastewater treatment.

"You can extract energy and nutrients from the concentrate, a thin stream of about one fiftieth of the wastewater", says Lex van Dijk, founder and Managing Director of BLUE-tec. "The Forward Osmosis process does not use pressure. The technology uses the difference in osmotic pressure."

### Not pressure-driven

BLUE-tec uses special membranes for Forward Osmosis, which only recently became commercially available. Together with TU Eindhoven, they are researching further optimisation of the membrane. Similarly to the pressure-driven Reverse Osmosis process, it blocks dissolved substances, but is less sensitive to fouling. "It allows the filtration and concentration of complex wastewater", continues Van Dijk. "This makes Forward Osmosis suitable for heavily polluted industrial wastewater, clearing the road to zero liquid discharge (ZLD). It could also be of interest for concentration processes in other sectors, such as the food and beverage industry and the agro-industry."

### Fast growth

BLUE-tec was founded in late 2014 by Van Dijk. "Before that, I ran two successful water technology companies, which I ended up selling. I've never been able to sit still for long though. Recycling wastewater, which contains many valuable substances, fascinates me. I want to continue to develop wastewater recycling technology. That is our team's main mission. I am actually no longer the only employee at BLUE-tec. We have grown significantly in a short time, and now have a staff of nine people."

### Projects granted

2016 was a good year for BLUE-tec. They applied for subsidies for four large development projects. "We were awarded all of them", says Van Dijk. "It was an unexpected windfall. We are now continuously receiving requests from the industry. In addition to Forward Osmosis, we are also working on other technology, sometimes in combination with Forward Osmosis. These include membrane distillation, membrane filtration for ammonia

extraction, pressure-driven membrane filtration, and membrane bioreactors. We can deliver out-of-the-box technology to our customers, but we also provide support for tests, lab research, and pilot phases." BLUE-tec joined the Water Alliance last year. Van Dijk is pleased with their membership. "We have worked together at a trade show in Utrecht, among other things. I consider cooperation to be very valuable. That's why I'm was looking forward to the WaterLink symposium last January, where we will be able to establish many new contacts."

*Editor's note: Together with Aquacolor Sensors and ADS Water Solutions, BLUE-tec became the 100th Water Alliance member.*



[www.blue-tec.nl](http://www.blue-tec.nl)



It is a topic that comes up with a certain regularity in WaterProof: membrane filtration. A technology that can be used for filtering water (or other fluid). Smart applications and innovations in this specialism are paving the way for big impact on the regional economy. That became clear, yet again, at the networking event “Sanitary Membrane Filtration Systems in Industrial Processes” held this past 17 February. Organized by the Water Alliance. Location of the event: Westra Stainless Steel in Elahuizen.



collaboration: “When we met Harry from Wafilin, we quickly realized that he knew more about membranes than we did. Meanwhile, we have the knowledge about the market and a network to get the technology to the market. We continued development together, and are now convinced that we are in the lead in this market. There is considerable interest. Soon we are going to do a number of global demo projects, including in Las Vegas.”

*‘membrane technology can be a “game changer” in other industries too’*

**Disruptive**

That innovative membrane technology can be a “game changer” in other industries too became clear to the more than fifty guests. Take the dairy industry. Wafilin recently won the WIS Award innovation prize for the innovation “Concentrating Milk” (about which more can be read elsewhere in this WaterProof). In short, milk can be concentrated right after milking so you have lower transport costs and can save on energy. Kees de Koning, Director of the Dairy Campus, brought up once again how wide the knock-on effects of such revolutionary innovations can be. “If the product gets through all the tests without a hitch you’ve got a game changer. But farmers will have to adjust their processes, and the same is true for industry. So they have responded lukewarm up to now. I think that is a sign you’re on the right track. Now we are going to test it here first, at the Dairy Campus. We’ll just hang one of those Wafilin machines on a milking robot and then look in detail at everything that happens to the milk.” “These are developments we want to support”, said Berhithu. “In doing so we may be throwing another stone into the pond, with immediate economic results for this region.”



Organizers of the networking event “Sanitary Membrane Filtration Systems in Industrial Processes” were the Water Alliance, the Frisian Dutch Dairy Network and the Netherlands Top Sector Water. Pictured from left to right: Peer Gijsen (CoorsTek, partner of Wafilin Systems), Harry van Dalfsen (Wafilin Systems), Alex Berhithu (Water Alliance), Kyle Wolff (Hydrasist) and Renze Westra (Westra Stainless Steel).

# ***Stones dropped in a pond***

## The far-reaching impact of water technology

Westra Stainless Steel is a thriving SME business that has been collaborating for a number of years now with, among others, membrane specialist Wafilin Systems, brand new winner of the WIS Award, the innovation stimulation prize for the field of water technology. Together the companies produce ready-made innovative products for the processing industry. That has already resulted in some great projects – although these have sometimes required patience, as those attending the networking event learnt.

For Avebe, the collaborators developed a way

to use filtration to realize considerable savings on water and energy expenses. It was for use in the processing of potatoes. “And that is good for us”, said Erik Koops, Project Manager for Sustainability at Avebe, a company that originated in Groningen, in the Northern Netherlands. “Sustainability is important to us, both as an ideal and also for economic reasons. At both our production locations combined, we are already generating a €1.5 million cost savings annually, thanks mainly to this innovation.”

**Impact**

That partnership is a good example of the impact water technology can have, according to Alex Berhithu, Manager of Business Development at the Water Alliance and this afternoon in the role of presentator-moderator. Berhithu explains: “You see that it’s not only the water technology sector that benefits (Wafilin Systems, Ed.), but the production industry gains too (Westra Stainless Steel, Ed.) and so does the processing industry (Avebe, Ed.). Obviously that is good for the economy in the Netherlands.”

**Las Vegas**

Innovation is not always the easiest path. Consultant Koos Oosterhaven was clear about that. As developer of FACT (the Food Application Centre for Technology, in which government, education and the food industry participate, Ed.), he pointed out that membranes have a very bright future. Still, implementation of good cleaning takes a lot of time, the researcher said. Renze Westra and Harry van Dalfsen, both of Wafilin Systems, can commiserate on this point. They recalled the long road they had to

travel before they had developed a membrane filtration system tailored specifically to help the industrial textile laundering sector achieve substantial savings on water consumption and energy. After a lot of research and a pilot at De Blinde laundry in Heerenveen, they got in touch with Australian partner Hydrasyst, a water technology company focused especially on wastewater treatment. That ultimately produced a joint venture. Hydrasyst Managing Director Kyle Wolff told those present why he was so keen on the





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WATER ALLIANCE

Agora 4

8934 CJ Leeuwarden

The Netherlands

E-mail: [info@wateralliance.nl](mailto:info@wateralliance.nl)

Tel. +31 58 284 90 44

[www.wateralliance.nl](http://www.wateralliance.nl)

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