

# inside acat

■ Newspaper for customers, friends and employees

25 YEARS ACAT  
Customer-oriented and Innovative

HIGHLY EFFICIENT DEMULSIFIERS

TYROL RELIES ON ACAT  
Optimized Dissolving  
and Dosage Technology

Visit us: stand no. 544 hall A3  
**IFAT POSTPONED**  
New Date: 7.-11. September 2020

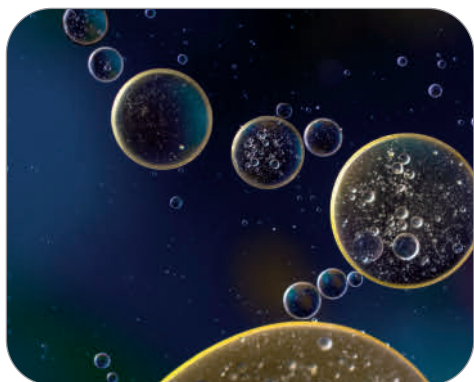


*Applied Chemicals International Group*  
Technical Service is our Success

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*Manfred Zabl*

Dear friends of our company,

Today environmental issues are on everyone's lips, and newspapers and all kinds of media are full of reports about the urgent need to protect our planet and, wherever possible, to reverse environmental damage. Since the beginning of the 1980s, massive efforts have been made to treat our wastewater leading to a high degree of purification in most industrialized countries. The central themes of this decade are air purification as well as waste prevention and recycling.

It is noticeable to all of us that winter time in the northern regions is getting shorter and milder and that extremely high and unbearable temperatures are becoming more common in summer. It is pretty sure that two effects culminate, which mutually escalate and reinforce each other. On the one hand, there is a sequence of global warming and cooling that has existed for thousands of years at regular and documented

intervals turning even temperate climates into tropical regions over a few centuries, only to herald a colder period again afterwards. Since time immemorial glaciers and sea levels have also been subject to fluctuations. But these developments took place very slowly and were hardly noticeable during the lifetime of a human being.

According to the rules of the earth's history, we are now at the end of an ice age and warming is inevitable. But the speed at which this is currently happening is breathtaking and this is certainly due to our own actions and development. We cannot slow down or reverse natural developments. For millions of years sea levels have been rising and falling and glaciers have been melting and forming. But we have the responsibility to reduce our influence on these natural processes to a large extent and to get them under control! Less for ourselves, but most of all for the generations to come!

The younger generation is already rebelling vigorously and it is urging rapid actions and solutions. With good reason and the impatience of the youth! Today the world's population is larger than ever before, CO<sub>2</sub> emissions are increasing constantly and the best countermeasure, the green spaces of all kinds reducing the climate-damaging CO<sub>2</sub> via photosynthesis, are destroyed by deforestations and fires. The anger is therefore understandable and unfortunately, the world politics does not pull together and it moves only in slow motion.

But I hope and believe that, with a few exceptions, the problems have now been widely recognised. Now we are needing timely solutions - and it is up to all of us! This requires new technologies, a great deal of innovation and research and, of course, the financial means to implement all this quickly! The world's largest environmental trade fair – IFAT 2020 in Munich - will open its doors again in September this year and the issues addressed there are more topical than ever before! Of course we will be there again as exhibitors and we are looking forward to your visit and interesting discussions!

With this in mind, I wish all a pleasant and relaxed summer, undisturbed health and all readers an exciting read with this 29th edition of inside acat!

Manfred Zabl  
CEO Applied Chemicals International Group

# IFAT 2020 - The World's Leading Trade Fair for Water, Sewage, Waste and Raw Materials Management

IFAT 2020 takes place from **7<sup>th</sup> to 11<sup>th</sup> September 2020** in Munich. All relevant key-players will present their latest products and services on environmental solutions. Again ACAT will be present as an exhibitor. Visit us at our booth no. 544 in Hall A3!



The world's leading trade fair for environmental technologies provides the answers. Being the largest platform for water, sewage, waste and raw materials management, IFAT gathers the industry from all over the world—its innovative offers set benchmarks for the future: The entire range of offers is available to visitors, from drinking water supply to waste water disposal, waste and raw materials management and innovations in pollutant management, sustainable road construction and mineralogical engineering.

## Setting the pace. The industry's trending topics

At IFAT's newly designed professional supporting program you get to know everything about the industry issues of today and tomorrow. How can communities and cities be designed sustainably? What does a circular economy look like in practice? Which intelligent drives are fit for the future? Find out about the valuable innovations, the future of water as well as about

the access to and the quality of our most important resource.

## The key facts of IFAT 2020 at a glance

- 3,305 exhibitors from 58 countries and regions
- 142,472 visitors from 162 countries and regions
- 260,000 square meters exhibition space

This year we will be there for you again as an exhibitor and we will spoil you with Carinthian specialties. UEFA has cancelled the European Football Championship in summer 2020, but our traditional **kicker tournament** will take place in the usual manner on **8. September from 6:00 p.m. at our stand no. 544 in hall A3**. The players will be cheered with dynamic music. As always, players will receive great prizes and delicious finger food. We look forward to an active participation and to your visit at our booth 544 in hall A3.

*Text: Susanne Durst*

# PAPER FOR FUTURE IN OCTOBER IN GRAZ

„Paper for Future“ is the promising topic at this year’s „Paper & Biorefinery“, the industry meeting point for the pulp/paper and biorefinery sector from 28th to 29th October in Graz.

At the end of October, the representatives of the pulp/paper and biorefinery industry will gather in Graz for their traditional industry meeting point. Here insiders and interested parties will have the opportunity to experience well-known speakers and diverse perspectives and they can gain valuable insights. An interesting trade exhibition and an evening event in the beautiful Restaurant on the Schlossberg will complete the conference perfectly.

The aim of the initiators is to create a platform for future-oriented impulses. We are looking forward to interesting, future-oriented discussions with you on 28th/29th October at our exhibition stand. This year’s focus is on the theme PAPER FOR FUTURE!

*Text: Susanne Durst*



Meet us in Graz!

**PAPER & BIOREFINERY**

CONFERENCE 28-29 October 2020, Graz TRADE SHOW

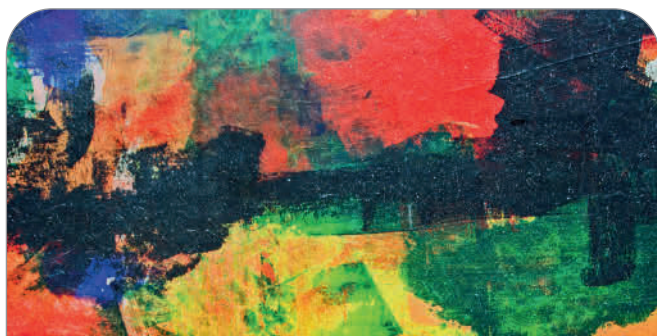
[www.paper-biorefinery.com](http://www.paper-biorefinery.com)

**PAPER FOR FUTURE!**

Mitigating climate change.

ABB AC GRAN STARCH SIEMENS synthomer

PHOTO: DEVANATH/PIXABAY



## Hungarocoat 2020

24.-25. November Budapest



## HUNGAROCOAT

About 70 international exhibitors are expected at „Hungarocoat“ from 24th to 25th November. ACAT will be present with a stand.

About 70 exhibitors or represented companies are expected at this year’s Hungarocoat. For ACAT this event is a fixed point and a highlight in our events calendar. That is why we will be there again with a stand. The chemtech division is looking forward to many visitors to the fair and to making new contacts in addition to those with existing customers.

Hungarocoat is one of the most important trade exhibitions for the coatings industry. It takes place every two years at the ELTE Convention Centre in Budapest. The exhibition and conference are organized by the „Research Institute for Paint Industry“ of the Hungarian Chemical Society - this year it will be held from November 24th to 25th. We are looking forward to your visit!

*Text: Alexander Frank*

## ICAC AND ACAT: CHINA MEETS VIENNA

A delegation of the „Industry Cleaning Association China“ (ICAC) paid a working visit to ACAT Vienna.

The demand for modern industrial cleaning technology has recently increased enormously in China. The main criteria for the optimization of the cleaning processes are the reduction of emissions, improvements in safety, production speed, productivity, durability and the reduction of energy and water consumption. The driving force for the further development of cleaning technologies in China is the „Industry Cleaning Association of China (ICAC)“. It was founded in 2011 and unites all areas of industrial cleaning.

In July 2019 we had the pleasure to welcome a delegation of the ICAC to our company. After a lively exchange of the technical and economic possibilities of a cooperation, we deepened our discussions in the garden of ACAT Vienna with small snacks in a pleasant environment and in marvellous weather.



ICAC delegation and ACAT staff at the working meeting in the garden of ACAT Vienna

We would like to thank the members of the delegation for their keen interest and all responsible colleagues for the perfect organization of this meeting.

*Text: Erich Sailer*

## GREAT CHEMTECH-MEETING IN VORAU

Innovations in the chemtech sector, exciting news about kaolin and historical facts about culture and everyday life - all this was presented in only two days in May 2019 at the IC-Meeting in Vorau!

PHOTO: GABRIELE HORAK



From May 6th to 7th, 2019, the chemtech division spent its meeting in a different way. We drove to Vorau in Styria. After the short but intensive internal meeting, Mr. Katholnig from Imerys held a product training on kaolin. After a very interesting overview of fillers, we enjoyed dinner.

Next day we went to Vorau Abbey, which we visited as part of a very informative guided tour. The Augustinian Monastery was founded by Margrave Ottokar III in 1163. The church celebrated its 850th anniversary in 2013. In order to shine in full splendour in the commemorative year, the inside of the monastery church was restored in 2012-2013.

The day after the chemtech meeting a visit to the Vorau Monastery was on the agenda.



The interior of the church was restored for the 850-year anniversary in 2013

Afterwards we visited the open air museum Vorau. The worth seeing collection of old rural buildings with original inventory documents the East Styrian working world of the past centuries and shows the life of ordinary people. All buildings have been preserved in their original condition. Extensive collections of machines, devices and tools gave an insight into already extinct



Original preserved:  
Cash register at the open air museum in Vorau



PHOTOS: GABRIELE HORAK

handicraft trade: Cooper, wainwright, shoemaker, linen weaver, rope maker, saddler, shingle maker, binder, potter . . .

To top it off, we visited the “Buchtelbar” in Wenigzell to taste the wonderful fluffy Buchteln with vanilla sauce. Many thanks to Alexander Frank for this very special great meeting.

*Text: Gabriele Horak*



Fluffy delicacy:  
Giants Buchteln at the „Buchtelbar“ in Wenigzell

# 25 YEARS ACAT

## Customer-oriented and Innovative



„Technical Service is our Success“- our guiding principle 25 years ago, today and for the future

**AUTHOR:**

**MANFRED ZABL**

Time has passed far too quickly and the young women and men of the founding years already have grey hair and they do not look quite the same as 25 years ago. With great pride I can report that EVERYONE, who started ACAT with me on December 24th, 1994 is still working at the company. There is a special “spirit” in this company that has made us all grow together into one big family. And this is exactly how we feel when we work together.

No matter in which function or position an employee is, it is clear and self-evident to everyone that we work for our customers, because they are the basis for the company’s success. Consequently, our daily work is geared towards the satisfaction and trust of our valued customers we do not only supply, but we also want to provide comprehensive and competent service, advice and support.

In this endeavor all employees of the ACAT Group are in the same boat, regardless of their hierarchical level.



This often results in a blurring of the hierarchies existing in our company as in every company. But nobody is afraid to tell his own opinion or even to take an opposite view, if something seems to go in the wrong direction. And everyone has really a good chance of being heard, and together we can find the best way to solve a problem - or perhaps, an innovation is born. It is really nice when one don't have to mince matters and can freely express his opinion without fear of negative consequences. But it must also be accepted that one's own opinion is wrong and that another person has better arguments. When everyone leaves the meeting satisfied, it promotes the feeling of togetherness enormously - and that is exactly what we mean by the term "ACAT Spirit". In our company things are very familiar, or rather like they are in small craft businesses, where sometimes there are heated discussions, but ultimately compromises and solutions are found without anyone being personally hurt during the discussion. Therefore, people like to continue working together.

But the origin of this pleasant atmosphere dates back more than 25 years, to the 1970s. The owning family of CELL International AG (founded in 1947 in Switzerland), which at that time was a major trading company for pulp and kaolin, wanted to build up a further mainstay

for the future and find a way to follow the emerging trend of using chemicals in the paper production process and dispersing minerals. There was already a market for dispersants at that time and one of the most important chemical producers with the most advanced products was a very small company in Central England, which was spun off from BASF after World War II - named Allied Colloids Ltd, Bradford, Yorkshire.

Initially, the cooperation was bumpy and the time was not yet ripe for a broader use of these chemicals. At that time, paper was produced in an acidic medium with alum (aluminum sulfate) and with the famous Polymin SK from BASF, using calcium carbonate as a filler was not yet an issue. The use of the polyacrylamides developed by Allied Colloids as a replacement for Polymin SK was only partially successful, and most papermakers quickly refrained from using them. The corresponding products as well as the production application were simply not yet fully developed.

40 years ago when I started working at Cell GmbH in Vienna, in 1980, the situation regarding the establishment of a further mainstay for chemicals was pretty bad and the entire project was in a parking position with only a few sales opportunities. After a difficult

**On the occasion of the founding of ACAT, we planted an oak tree in the garden of our Vienna office.**





**Nothing ventured, nothing gained! Patience overcomes everything!**

start in the burgeoning environmental sector, however, fortunately, there was a technological turnaround in paper production. The operation mode of the paper machines was successively changed from acidic to neutral. At a breath-taking pace Allied Colloids developed product after product and suddenly the demand for innovative polyacrylamides increased enormously. The creativity of Allied Colloid was inexhaustible and also customized products were developed. Those were really pioneering times and only the close cooperation, the open exchange of opinions and a lot of „blood, sweat and tears“ released this enormous innovative power. We were united by an intensive cooperation and -God knows- we fought with foot and nails, with the then Scottish general manager as well as with the doorman of Allied Colloids. We spared no effort to solve the problems our customers and every means was right for us. With this will and with this tenacity we have grown up, and this is the basis for our special “ACAT spirit”, which is still alive today!

The enormous workload of this pioneering period has borne abundant fruit. In the paper industry, as well as in environmental technology and mining, the demand for polymer chemicals and the associated application technology has increased enormously. The Cell International AG's involvement in this burgeoning business area grew steadily, so that in 1994 it was decided to establish a separate company for this business area. On December 24th, 1994 the ACAT Group was founded with its first subsidiary in Vienna.

Seen from this angle we are actually a few years older than 25 years (we are already 73 years old). Nevertheless, we want to celebrate the anniversary of the foundation of ACAT this year. On the occasion of the founding of ACAT, we planted an oak tree in the garden of our Vienna office. We can see and admire it from our windows. It has grown majestic, it is healthy and resistant, and it is the symbol of our constancy and continuity.

# PHOSPHORUS RECYCLING: The Future Has Already Begun!

No life without phosphorus. Especially agriculture needs phosphorus as fertilizer. But the worldwide phosphorus reserves are limited. The recovery from sewage sludge would be the solution to the dilemma. There are already processes for this. The future has already begun. ACAT makes a contribution to it!



PHOTOS: CHRISTINE NESTLER-KENZIAN

Forward-looking: the MAP process. Struvite is extracted from sewage sludge

**AUTHOR:**

**ERICH SAILER**

I have lectured on the importance of removing phosphorus from wastewater on several occasions in this medium. However, phosphorus (P) is a vital and at the same time it is a finite resource. All organisms, plants, animals and also humans need phosphorus to live. Phosphorus is an element of the DNA, in which the genetic material is hidden, and it is essential for cellular energy supply. The world's largest consumer of phosphorus is the agricultural sector. About 90 percent of the approximately 180 million tons of phosphorus mined annually are processed in the fertilizer industry. And there is still no substance to replace phosphorus as a fertilizer. According to the „Green Report 2016“, the phosphorous mineral fertilizer sales in Austria amounted to 30,000 tonnes of phosphate corresponding to about 13,000 tonnes of pure phosphorus. However,

Austria has no phosphorus deposits. Therefore, all fertilizers containing phosphorus must be imported. But also worldwide the phosphorus deposits are limited. They are mainly found in fossil deposits in China, Morocco, Jordan and South Africa, where phosphorus was formed over several million years from animal carcasses, especially from bones. Although new deposits have been discovered in North Africa and Iraq, in some regions mining is difficult due to unstable political situations.

According to the latest studies and the discovery of further deposits, global phosphorus reserves will last for around 350 years. During this time it should be possible to find economically viable technologies to close the phosphorus cycle to a large extent. In fact, the future in this sector has long since begun:

About 7,800 tons of phosphorus can be detected in Austria's wastewater treatment plants every year, 6,600 tons are found in sewage sludge, the rest is lost in waters.

PHOTOS: CHRISTINE NESTLER-KENZIAN



**Phosphate fertilizer  
produced from sewage sludge**

**The MAP process brings:**

- saving of floccing agents for sludge dewatering
- Increase in sludge dry substance and consequently significant reduction in disposal costs
- Increase of the sludge dewatering throughput
- Massive reduction of the precipitant quantity
- No deposit-related malfunctions in operation
- Reduction of cleaning costs for sludge dewatering and pipes

Due to possible environmental risks (heavy metals, organic trace substances and pathogenic germs), the direct application of sewage sludge in agriculture is not yet accepted, but it will be important to use this valuable resource in the future. The course for this has already been set. Due to the amendment of the Sewage Sludge Ordinance and the Fertilizer Law the soil-related utilization of sewage is no longer permitted for the large sewage treatment plants in Germany. After a transitional period, phosphorus must be recovered from all waste water treatment plants with a phosphorus content of 20 g/kg dry matter or more. The phosphorus content must then be reduced to below 20 g/kg or at least 50% of the phosphorus contained in the sewage sludge, or 80% of the phosphorus contained in the sewage sludge ash must be recycled. Since this amendment has already been adopted in Germany, it is only a matter of time before Austria will follow suit.

Accordingly, the phosphorus recovery from sewage sludge or sewage sludge ash is the future - and it has already begun. In recent years, numerous technological approaches have been developed that make it possible to recover pure phosphorus compounds from the partial streams of sewage treatment plants. With MAP Star, ACAT has also made a contribution to this. The technology for the recovery of phosphorus from sludge water can already be used without any problems and under certain conditions it is also economical and it is possible to produce a pure end product which often also has a very good plant availability. Such precipitation and crystallization processes in the liquid phase are generally well applicable and easy to integrate, especially in bio-phosphorus plants. They have the advantage that they can also prevent the spontaneous precipitation of struvite and the associated problems of deposits and blockages.

Currently, alternative processes using wet oxidative or wet chemical reactions, pressure and temperature are technically difficult to implement and, moreover, they are difficult to assess from an economic point of view. It should be noted that the resource costs are often not in proportion to the recovery potential, both in terms of technology and national context.

As far as the metallurgic processes are concerned, there is still a need for further research, although the potential of this technology for future implementation is certainly there.

In order to enable the greatest possible recovery of all the phosphorus present in the wastewater, all the sewage sludge would have to be disposed of in monocombustion processes and the phosphorus would have to be recovered from the ashes. Mixing with low phosphorus ashes should be avoided.

The technological approaches for the phosphorus recovery from ashes reaches from wet-chemical processes with very good to moderate heavy metal

removal and a comparatively low recovery potential to thermochemical processes for targeted heavy metal removal with a high recovery potential but rather poor availability for plants and processes whose aim is to improve plant availability without heavy metal removal. Which technology ultimately is used for the treatment of sewage sludge ash depends on the requirements for economy, heavy metal removal and plant availability. The advantage of a strategy with mono-combustion of the sewage sludge is, on the one hand, the possibility of using other phosphorus-rich material flows (e.g. carcass meal) and on the other hand, the intermediate storage of the ash for a later recovery („Austrian phosphorus mine“). However, the structures required for this purpose, such as mono-combustion plants, would still have to be expanded in Austria.

With the ACAT MAP Star process we are able to make a small contribution to the new challenges in phosphorus recovery. However, there is still a lot of research and development work waiting for us in the coming years. ●



#### MAP process as 3D model

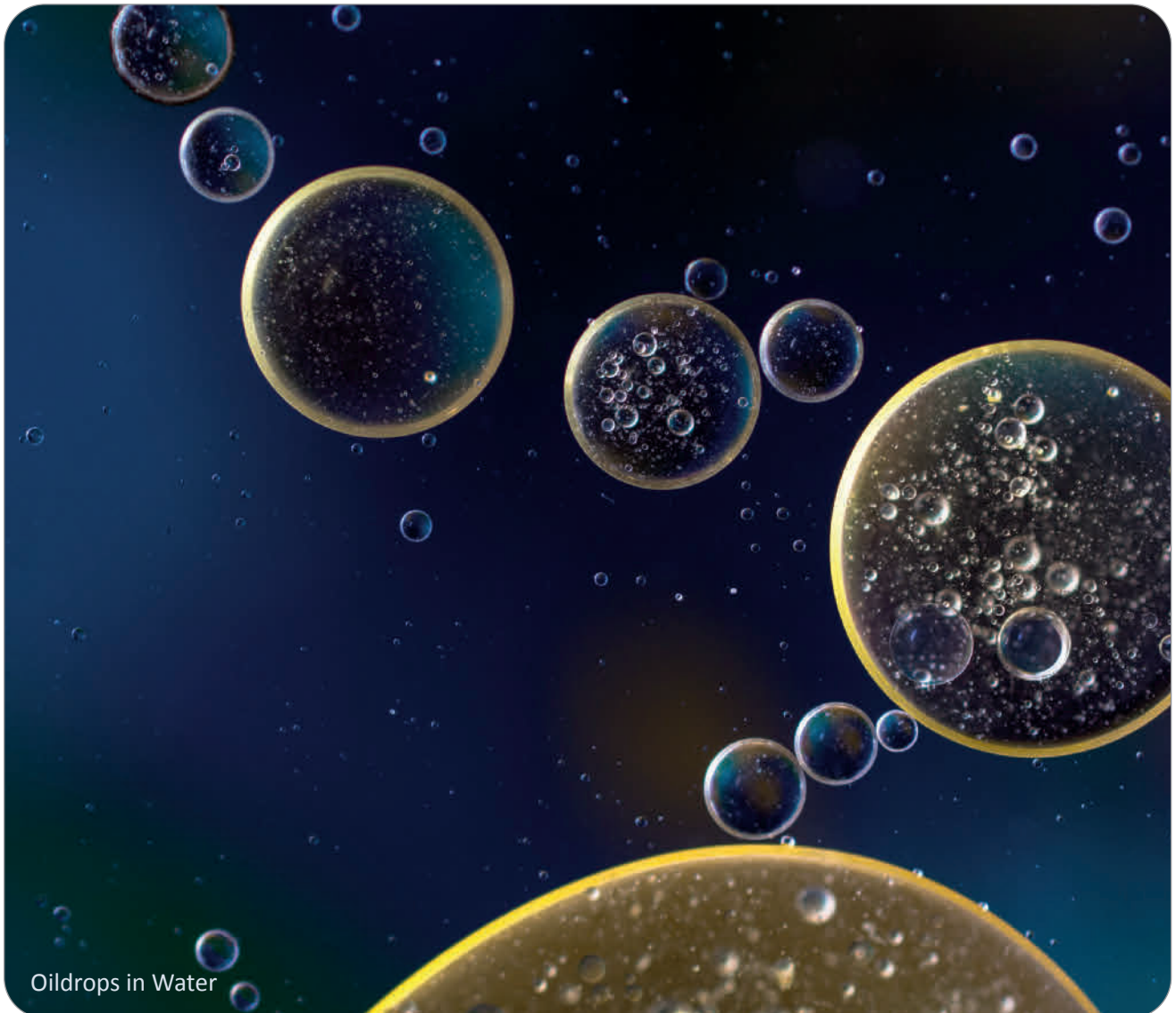
High total hardness and ammonium concentrations in the digested sludge form poorly soluble salts such as:

**Struvite** (magnesium, ammonium, phosphate) for short MAP  
 $[MgNH_4PO_4 \cdot 6H_2O]$

**Brushite**  $[CaHPO_4 \cdot H_2O]$   
(already formed at pH values of 4.2 and higher)

# HIGHLY EFFICIENT DEMULSIFIERS: New in ACAT Product Range

PHOTO: DIFFERENT PERSPECTIVE/PIXABAY



Oil drops in Water

**AUTHOR:**

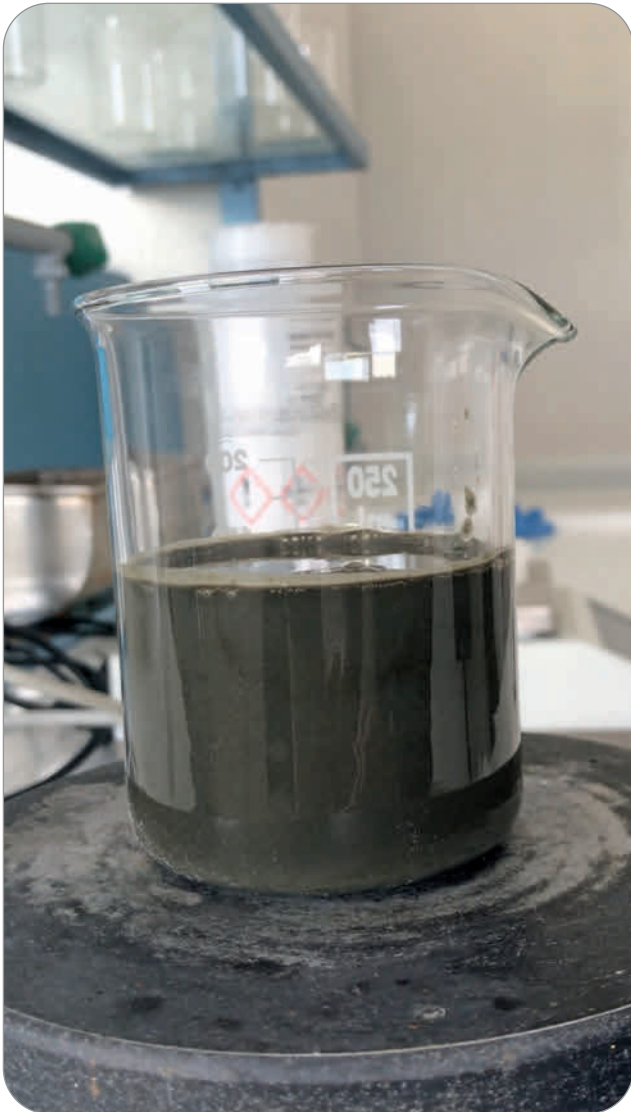
**MAURO BIGHETTI**

Since the beginning of this year ACAT has included in its product range a new line of highly efficient Demulsifiers. But first of all what is an emulsion?

An emulsion is a system of two immiscible liquids in which one of the liquids is dispersed as small droplets into the second liquid.

The liquid that is dispersed is called the internal phase. The liquid into which it is dispersed is called the external phase.

There are two types of emulsions that are common in industry: Water-in-oil emulsions (lean emulsion) and oil-in-water emulsions (fat emulsion). The most common emulsion is the oil-in-water emulsion: it is formed during treatments such as metal processing of iron and steel and therefore mainly in wire drawing mills, or it is generally formed when tools are used to process metals with cutting oils.



**Original emulsion**

It is almost impossible to realize oil separation without an effective system for breaking the emulsion. Demulsifiers are specific products for the separation (breakage) of the oily emulsions and there are two types of these products, demulsifiers for the treatment of „lean“ emulsions (oil in water) and demulsifiers for the treatment of „fat“ emulsions (water in oil).

The most common types are the lean emulsions. For this emulsions the ACAT product line „green“ is used. „Green“, because it consists of cationic and non-cationic polymers and no environmentally harmful products are released during treatment.

Their use is very simple: they are used with „batch“ treatments under agitation (no turbo) or with air insufflation. Simple laboratory tests (Jar-Test) determine the optimal dosage.



**Emulsion after treatment**

Fat emulsions (water in oil) are treated with completely different demulsifiers than those mentioned above, both as formulation and as application.

These products are mainly used in the refineries (for the treatment of tank sloops) and they are classified as ADR products. These demulsifiers are used independently of the type of treatment - static (batch) or dynamic (continuous) - with centrifuges at a temperature between 75 and 80°C.

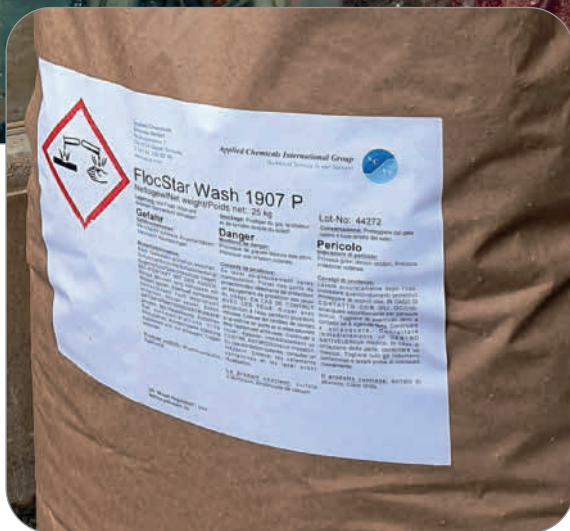
The liquid to be treated is in fact very thick and viscous and it needs high temperatures to reduce its viscosity and this facilitates mixing with our demulsifier.

Also in this field of application, the product suitable for the treatment is identified by previous laboratory tests.



# INNOVATIVE WASTEWATER TREATMENT for Car Washes and Garages

PHOTO: STEPHANIE ALBERT/PIXABAY



**AUTHOR:**

**VINCENCO CARCO**

In addition to polymers and equipment for industrial and municipal sewage treatment plants, ACAT is now also your contact for splitting agents used in the garage and recycling sector. ACAT strives to be together with you at the forefront wherever environmental protection is required.

Our new product FlocStar® Wash consists of various partially water-soluble components with a very high proportion of absorbent substances and coagulating polymers. It is used in the treatment of industrial waste water to eliminate high amounts of organic and inorganic contaminants.

As required, we offer you a wide range of services together with our products. Our service technician will be happy to assist you with any questions you may have. Filter bags and filter rolls can be ordered together with the product.

The exact description of the properties of our products will help you to find the right product, but of course we will also be pleased to advise you on site. Please do not hesitate to contact us.



# Tyrolean Wastewater Associations Rely on ACAT DISSOLVING- AND DOSAGE TECHNOLOGY



**AUTHOR:**

**ROLAND AUER**

For more than 35 years we have been gaining experience in the construction of dissolving systems for a difficult to dissolve chemical: the polymer polyacrylamide. The process engineering knowledge of our field staff combined with the knowledge of our experienced employees of the Technical Centre Scheibbs made it possible to further develop the design and the control technology of our dissolving and dosing systems according to the latest requirements.

Due to a close cooperation with the plant operators and their operating staff, the demand, the process engineering requirements and the wishes of the costumers were taken into account and individually implemented. The close cooperation with our customers and ACAT's flexibility in project implementation convinced three major Tyrolean wastewater associations.

**PROJECT WWA HALL, TYROL – FRITZENS**

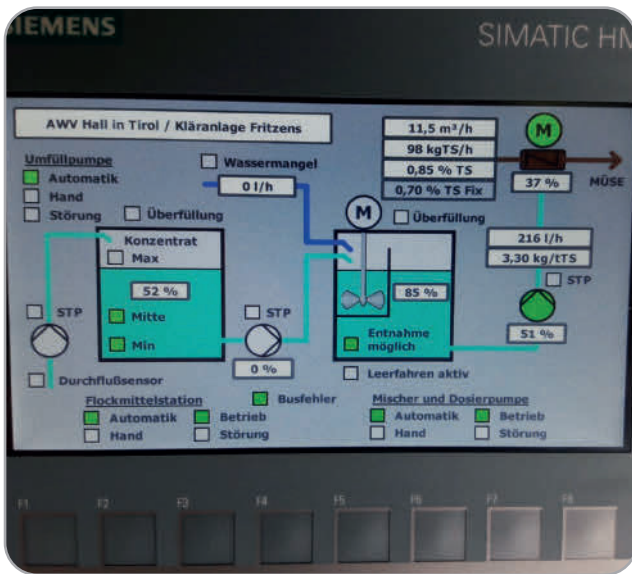
Link: <https://www.abwasserverband.com/>

## **Polymer dissolving unit FPU for sludge thickening with belt thickener**

16 municipalities have one mission: "We pull together when it comes to cleaning the wastewater from the region and finally discharging it cleanly into the Inn". Large investments have been made in the past. Today the focus is on keeping the existing infrastructure at a high technical level, expanding and optimizing it."

This concern was an occasion for the management, represented by Ing.Christian Callegari and for the operating staff, to take a closer look at the thickening of the surplus sludge.

The AWV (wastewater association) operates a mechanical surplus sludge thickening system with a belt thickener. A liquid polymer is used for conditioning. The exist-



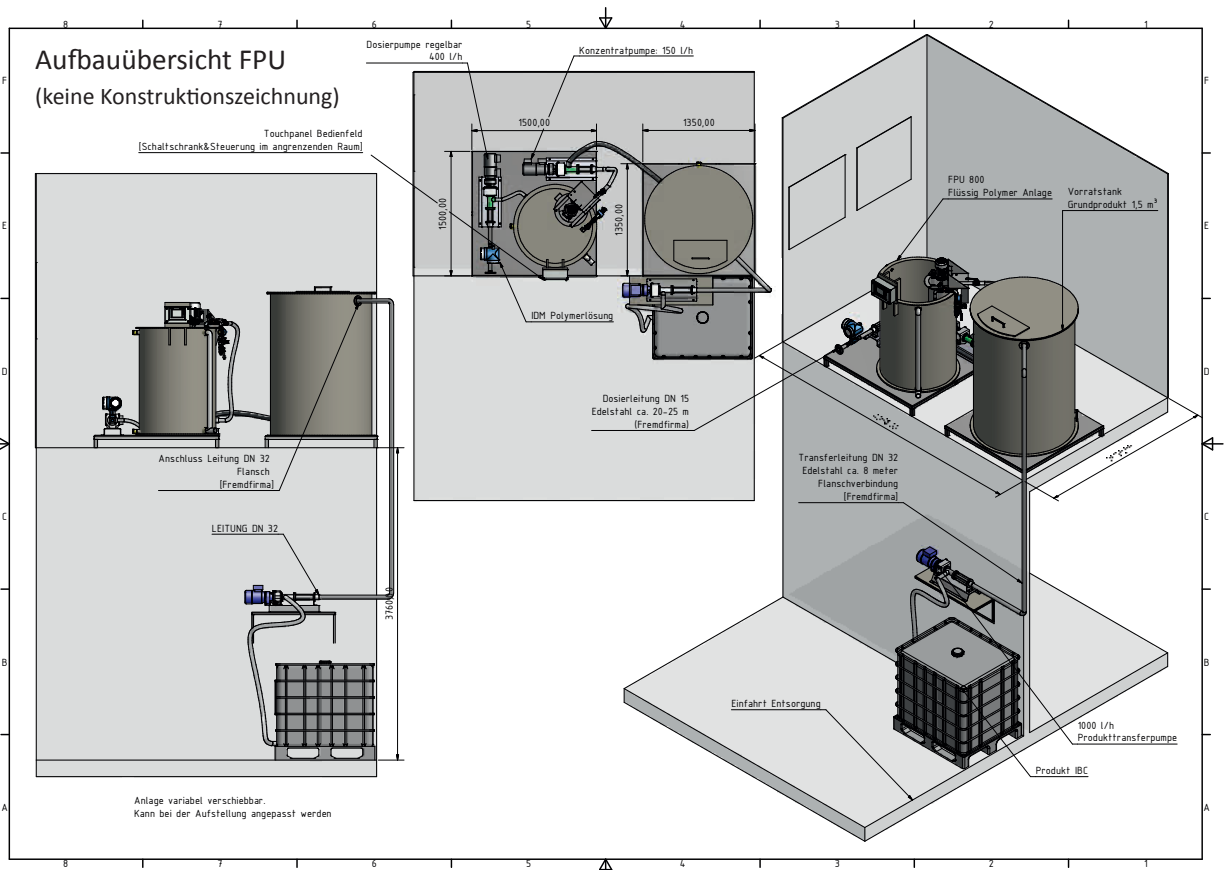
ing system was outdated, it was prone to failures and met no longer the technical requirements of the AWV Hall Fritzens. In October 2017, the technical options for an investment in the surplus sludge thickening system were examined and offers were invited.

As ACAT is a long-standing supplier with a lot of experience in the field of sludge dewatering, our technical experts were also invited to an interview and to submit an offer.

Together with the association our sales representative Roland Auer and the team of the ACAT Technical Centre Scheibbs worked out a tailor-made offer. This offer convinced the board of directors both from a technical and a business point of view! The contract was awarded to ACAT in December 2017. The project was implemented within the desired assembly and commissioning deadlines in the first quarter of 2018 and since then the plant has been running smoothly.

### Special features of the system

- The polymer is dosed proportional to volume and weight of the surplus sludge charged to the belt thickener.
- With an IDM the volume of the sludge is measured in m<sup>3</sup>/h surplus sludge, the online density measurement registers the current DS/h.
- The polymer is dosed with a controller in kg/t DS (dry substance).
- The mixing energy is adapted to the flow rate (kg DS/h) and is kept constant with a frequency controlled motor mixer.
- Assembly, electrical installation, programming of the dosing control and the integration into the existing control system were carried out by the Scheibbs Technical Centre.





**AWV Hall Tyrol – Fritzens Polymer dissolving unit FPU for sludge dewatering with belt decanter**

We would like to thank the management of the AWV Hall in Tyrol-Fritzens for the trust you have placed in us. Thanks also to the two plant managers Manfred Anfang, Hubert Klingenschmied and their teams for their active support and patience when the work sometimes lasted until late at night!

**PROJECT ARAB GMBH – AWV WÖRGL, KIRCHBICHL AND SURROUNDINGS**

Link: <http://www.arab-kirchbichl.at/>

**Polymer dissolving unit PPU 3 for sludge dewatering with high-performance decanter**

In Kirchbichl, about 55,000 m<sup>3</sup> of digested sludge with a dry substance content of approx. 3.0 % is dewatered annually. The processing of food waste and the co-processing of a wastewater/sludge mixture from a nearby food processing plant have a significant influence on the quality and composition of the sewage sludge to be treated.

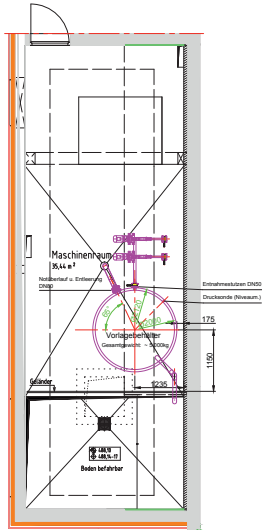
In 2017, our sales representative Roland Auer installed a mobile FHM station for powder admixture on a decanter to optimize sludge dewatering. The system was then tested over several winter months. 40 % powder polymer was added to the liquid FHM. The dry substance of the sludge cake remained the same, but the centrate was more stable with this mixture than in conventional liquid operation.

Due to the very good results, a new plant was planned being 100% compatible for the powder processing of both decanters. Together with the association and the Scheibbs Technical Centre, we prepared a tailor-made offer and an economic efficiency calculation was carried out. Our motto “a long-term partnership and the best solution for the customer” was able to convince the association’s decision-makers. The financial means for the conversion were released. The investment for the “New Polymer Plant” should have paid for itself within a few years. In autumn 2018 the plant was installed and since then the plant has been operating with a mixture of 60 % liquid polymer and 40 % powder polymer.

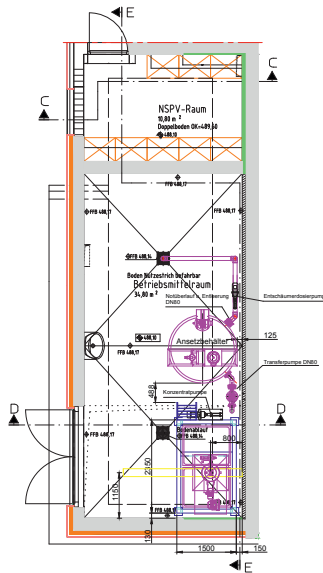
**Special features of the system**

- There are separate preparation and maturing tanks. The tanks are located on different floors.
- With a total tank volume of about 8,000 l, both decanters can be charged easily.
- Sufficient maturing time for the polymer solution is guaranteed.
- After taking out the required daily quantity, the preparation tank with the FHM solution is run empty. When the decanter is started in the morning, a fresh polymer solution is automatically prepared first.
- A defoamer can be added to the preparation.
- The mixing ratio liquid polymer to powder-polymer (in %) can be adjusted continuously.

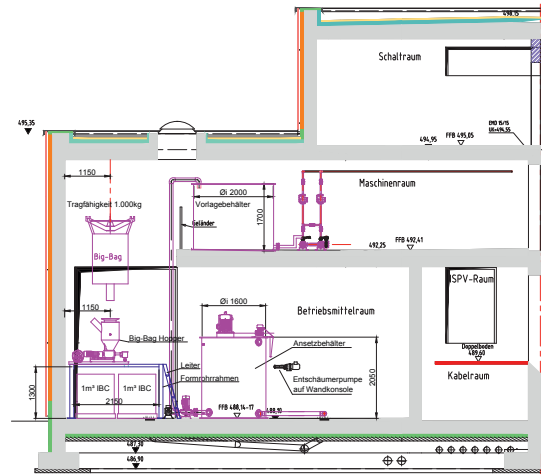
Grundriss 2-2  
Zwischengeschoß



Grundriss 1-1  
Erdgeschoss



Schnitt E-E



### Polymer dissolving unit PPU 3 for sludge dewatering with high-performance decanter

#### Results

In a year-on-year comparison of 2018 and 2019, the dry substance content of the discharge was kept stable. Operating the same mode and adding a mixture of 60 % liquid polymer and 40 % powder polymer results in a cost advantage of over 15 % of the operating resources used.

Another positive feature is the quality of the centrate. It is much more stable than when operating the plant with liquid polymer only.

We would like to thank the AWV Wörgl, Kirchbichl and the surrounding area for the confidence placed in us. Our special thanks go to the technical manager, Mr. Ing. Johann Kitzbichler, B.Eng. for his commitment and the coordination between the individual areas.

In one of the next issues of **inside acat** you can read about the

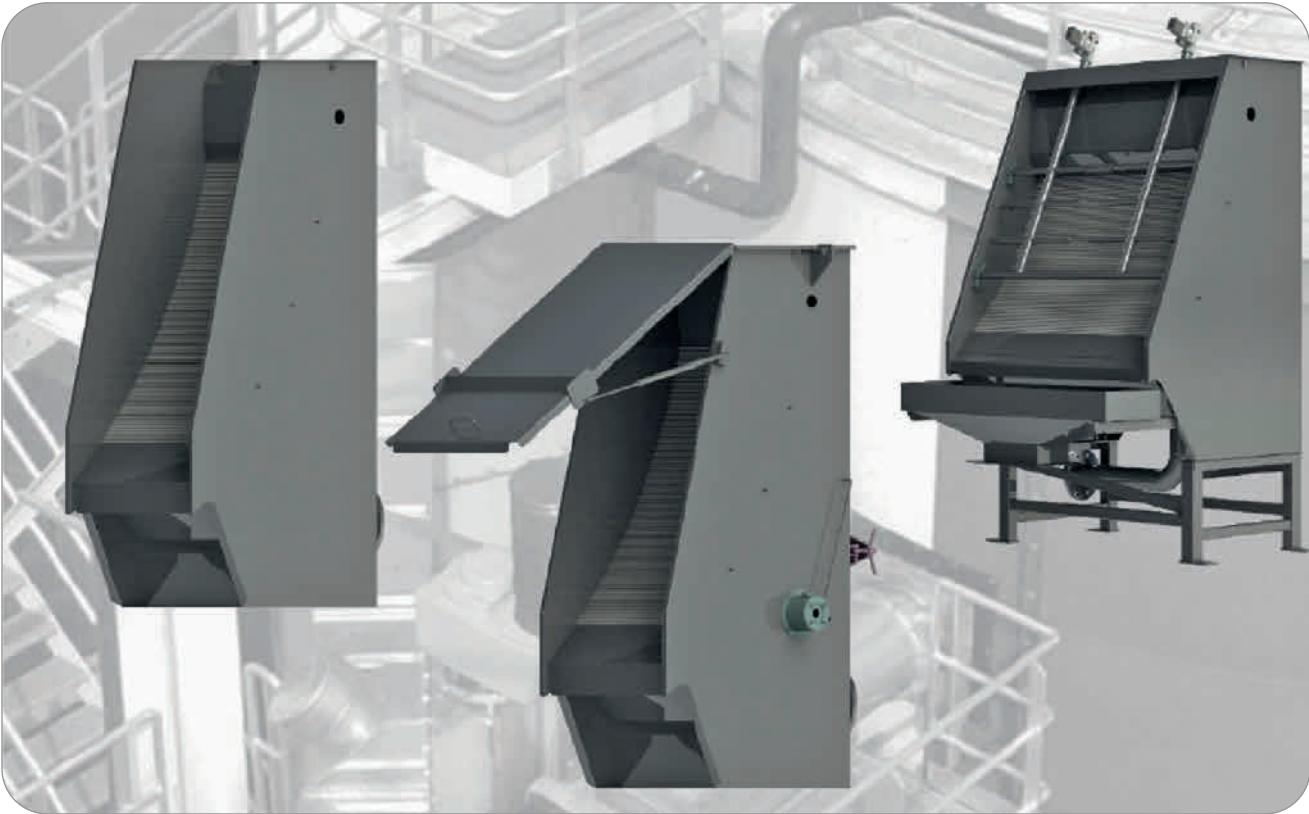
**Projekt Stadtwerke Schwaz –  
Waste water department**

Link: <https://www.stadtwerkeschwaz.at/>

Polymer dissolving unit PPU 3 for sludge dewatering with high-performance decanter Project award:  
December 2019 - commissioning March 2020



# PIMP MY SCREW PRESS



Filtrate after-treatment with screw presses with parabolic screens

**AUTHOR:**

**ERICH SAILER**

Screw presses are highly efficient sludge dewatering units. However, a very high dry substance content of the sludge in the discharge can mean with some sludge, that higher solids loads are entering the filtrate. Sometimes this causes problems in sewage plant operation. ACAT has therefore developed a method to “upgrade” screw presses of various designs:

**Parabolic screens** have been developed to remove solids efficiently and effectively from the process and

wastewater stream. Due to the large variety of slot widths, the parabolic screens can be used in many areas.

Each situation and application has different requirements and a different approach. This means that tailor-made solutions are possible, if the standard sizes will not meet the customers’ requirements. The screens are constructed in such a way that the water is drained almost immediately from the inflowing filtrate loaded with solids. Due to the length and specific angle of the screens, the dewatered solids have sufficient time to dry. ●

Thus filtrate values can be improved, typical values are shown in this table:

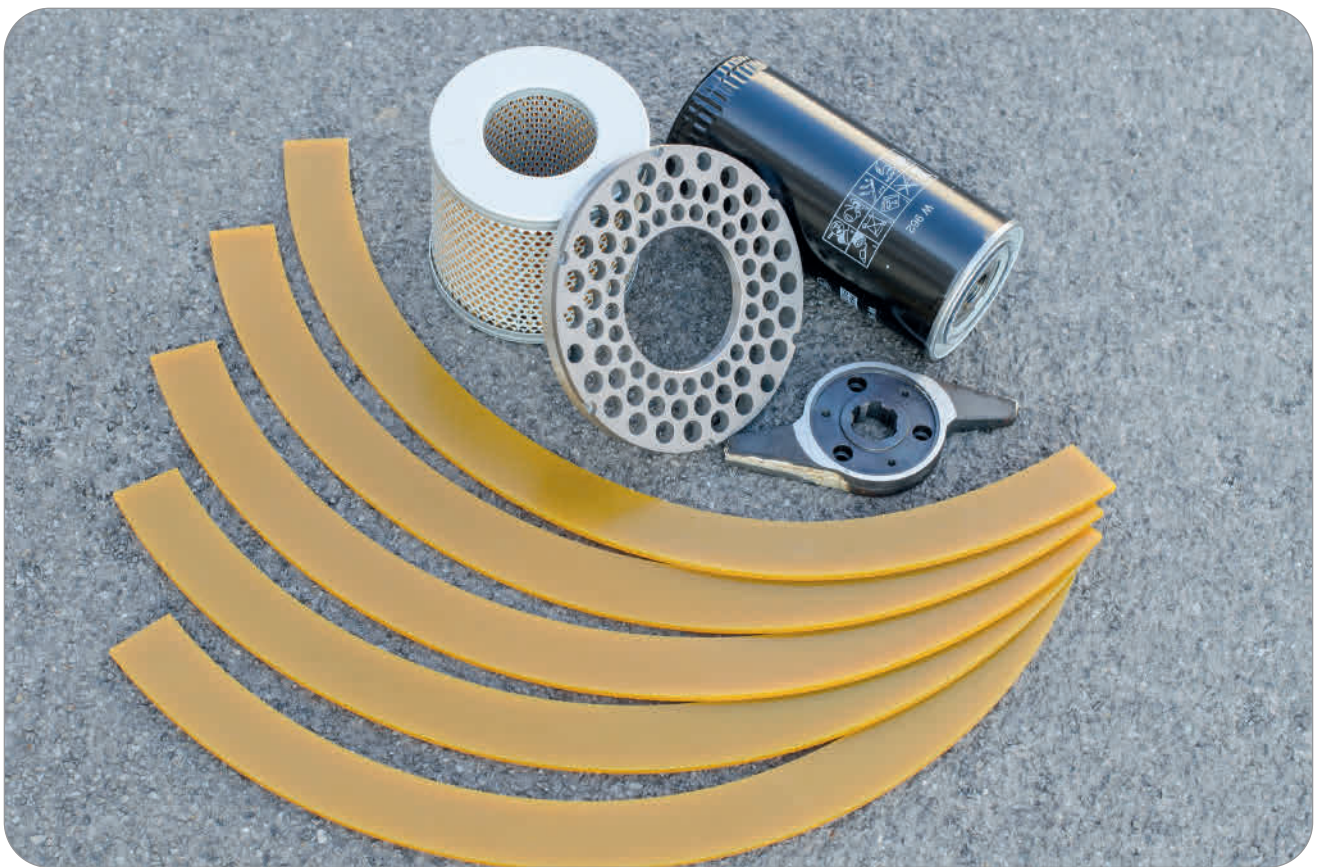
	untreated	with filtrate treatment
Rinsing of filterable materials	3,58g/l	0,13g/l
Standard operation	0,28g/l	0,06g/l
Rinsing of settable materials	60ml/l	8 ml/l
Standard operation	19ml/l	1,5ml/l
CSB rinsing	2444mg/l	524mg/l
Standard operation	1058mg/l	527ml/l
NH4-N rinsing	30,3mg/l	13,7 mg/l
Standard operation	29,9mg/l	29,5 mg/l

# FITNESS FOR YOUR MACHINES

## Regular service will be worthwhile!

Not only humans and animals must take care of themselves if they want to age in good health. Those who allow their valuable machines and equipment a certain amount of care and service can also keep them functioning and „fit“ for many years longer.

PHOTO: FOTOGRAFIE KENZIAN



Original ACAT spare parts

**AUTHOR:**

**ERICH SAILER**

Evolution had millions of years for the development of our bodies. Although this has resulted in an ingenious concept, mistakes can sometimes occur leading to illness or other disorders. The less you take care of your

body, i.e. the organs are „serviced“, the less sport you do and the less you pay attention to healthy „operating materials“, the more often you have to „repair“ them. In the past 25 years ACAT machine technology has put numerous new systems into operation: sieve belt presses, centrifuges, screw presses and mechanical pre-cleaning systems. All these machines were produced and installed with the highest quality requirements; just as evolution did with our bodies. In order to ensure that these systems can also „feel good“ in the long term, it is essential that they are regularly given a certain amount of wellness and fitness. Not only for the



PHOTOS: FOTOGRAFIE KENZIAN

### New filter cloths can achieve up to 30 percent more efficiency

sake of the machines, but above all in the very interest of the operators:

With freshly replaced sealing lips, screw presses can achieve 3 to 4 percent more dry substance content, chamber filter presses can achieve up to 30 percent more efficiency with new filter cloths, and serviced pumps and units provide higher performance with lower power consumption.

If you care about your equipment (for economic reasons and for reasons of sustainability), please contact our two „fitness and wellness trainers“ Dietmar Streckler and Rudolf Kafka to arrange a date for the next maintenance of your machines. Thus, you can prevent your equipment from becoming an eternal „patient“.

### Well serviced - work like clockwork!



# ODOUR CONTROL WITH ECOSORB

**AUTHOR:** LUCA FAGGIONATO

Applied Chemicals International group (ACAT) is the official partner of OMI in Europe for industrial applications.

OMI is the world leader in plant oil odour control technology and it has more than 30 years of experience in this field. Its products are safe, natural and effective.

ACAT produces and distributes Ecosorb for OMI, a product with high efficiency and effectiveness in controlling a wide range of different odours.

With our innovative equipment, we are able to treat and eliminate odours produced by wastewater treatment plants, waste transfer stations, landfills, compost facilities, food processors, steel mills, foundries, chemical plants, paper mills, petroleum refineries, fiberglass fabricators, remediation sites, tank cleaning applications, and many others.

The odour of waste water is one of the most complex problems to be dealt with, as it often affects the surrounding area. Neighbours are quickly prepared to create a scandal and express their dissatisfaction, in the countryside as well as in cities. Ignoring the problem only makes it worse, because if once the attention of the media is attracted, reporting on proven or suspected violations of the law, it often can lead to lawsuits.

To prevent such undesirable effects from becoming reality, OMI has developed Ecosorb, a natural solution for controlling odours. The air odour neutralizer Ecosorb is a new environmentally- friendly alternative to existing odour control systems. It consists of a proprietary blend of plant oils, food-grade emulsifiers and water that is non-toxic to humans.



In USA OMI collects air samples of odorous gasses on site and sends the samples to their Research and Development Center to be analysed. The Gas Chromatography Mass Spectrometry is used to detect volatile and semi-volatile compounds and the Gas Chromatography Flame-Induced Ionisation is used to detect sulphur-containing compounds.

A team of Ecosorb scientists carries out on-site measurements with various devices like Nasal Ranger and Scentroid: anything greater than 7 odour units is considered a nuisance odour.

PHOTOS: PIXABAY





ACAT is taking into consideration to use both the Nasal Ranger and the Scentroid also in Europe to ensure accurate analyses and research.

## About Ecosorb

Ecosorb products are leading in the natural, safe, effective and complete elimination of unpleasant industrial odours.

Ecosorb has two main product lines:

- An oil-based line: plant oils + plant based diluent
- A water-based line: plant oils + water + surfactant

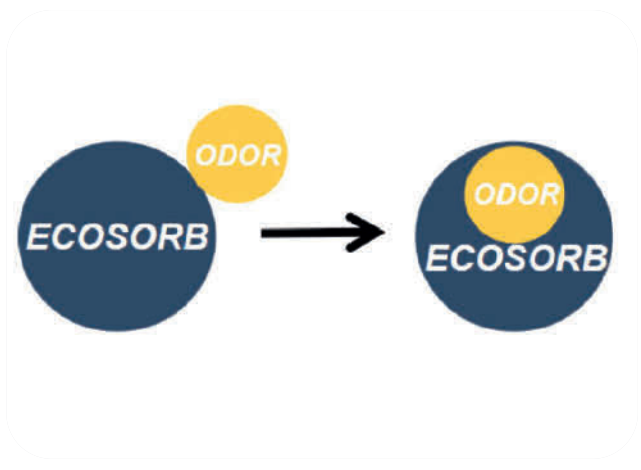
The Ecosorb odour control products do not mask the odour, but eliminate it permanently by degrading and neutralizing the odour molecules. They are non-toxic, plant-based products and therefore safe for humans and environment.

Ecosorb products are a blend of natural plant oil extracts, food grade emulsifiers and water, they are effective, safe to use, biodegradable and harmless to the environment.

Ecosorb products are USDA approved and all ingredients are non-toxic according to the guidelines of the Canadian DSL, the European EINECS, the Australian AICS and the United States TSCA.

## How Ecosorb works

Usually, in airborne applications of ecosorb products the atomized or vaporized material is carried into the atmosphere, where it attracts or it is attracted to everything in the atmosphere: a pleasant odour, a mal-odour or particles.



Research has shown that by using Ecosorb products several mechanisms are involved in the odour neutralization process. Which are the most important ones?

**Contacting** Van Der Waals interaction

- Electrostatic charge.

**Adsorption** binding of molecules to a surface

- The larger the surface area, the better the adsorption;
- After adsorption, the odour molecules are degraded or salts are formed. Ecosorb acid reactions take place with base molecules.

**Absorption** molecules enter the bulk phase

- the molecules are absorbed by the mass and not by the surface
- Odour under control;
- Caused by the solubility of the molecules.

**Solubility** the ability of molecules to dissolve in water

- Ecosorb products enhance the solubility of many gases;
- “The efficiency in odour elimination is proportional to the solubility of the odour” - Dr Wilkinson.

### An overview of the delivery systems

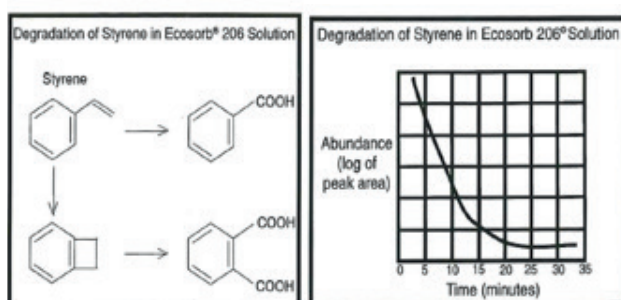
The effectiveness of the odour neutralization depends on the effective application of Ecosorb into the malodour containing atmosphere.

Our application technologies are crucial and they include: vaporization, atomization, additives, maintenance hole gel inserts, and spray gel.

- HPS (high pressure system): provides good atomization through a patented nozzle design and needs water to work.
- VPS (vapour phase system): produces sub-micron droplets and is dispersed as a dry spray. In this case, the droplets are smaller than in the HPS system. As a consequence, a bigger surface area is available and the droplets attract and absorb significantly more malodour. An additional advantage is that no water is needed.
- Additive: direct injection of Ecosorb into asphalt, resins, elastomers and other slurries.
- Gel inserts for maintenance holes
- Spray gel

### An important topic - Odour control of styrene

The use of styrene is constantly increasing as industry finds new and innovative applications for this compound. Unfortunately, styrene is considered to be highly reactive in the atmosphere and may contribute to smog formation and the production of secondary air pollutants. It is a volatile organic compound (VOC) and

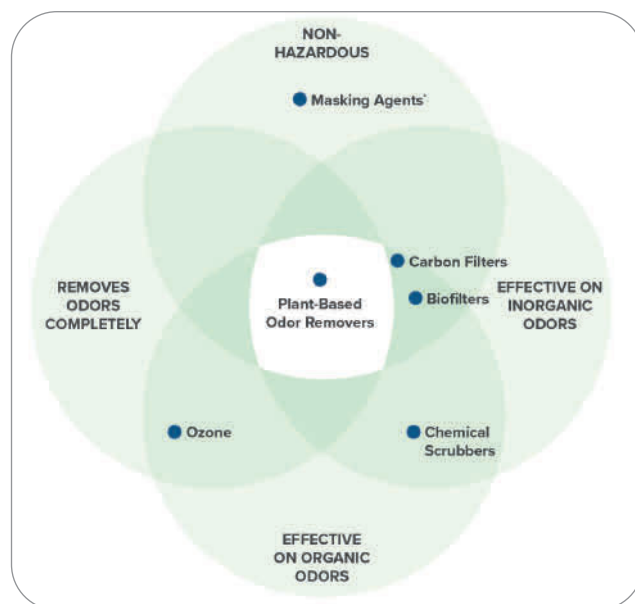


is listed as a hazardous air pollutant (HAP). In high concentrations styrene odours are unpleasant and dangerous.

OMI has developed Ecosorb 206 to specifically control styrene odours. They are not masked, but neutralized and thus completely eliminated. Ecosorb 206 improves the solubility of styrene so that the styrene molecules in the air can be dissolved in the atomized, diluted Ecosorb.

### Latest development – Cannabis Odours and Plant-Based Odour Removers

Recently OMI has developed a new line for the odour control of cannabis, using natural plant oils to destroy the cannabis odour. The blend of plant oils attracts the odour molecules and adsorption and absorption reactions neutralise their unpleasant odours.



There is a saying in chemistry: „The same dissolves the same“. A more common version of this is “fighting fire with fire”. Well, that is exactly what natural odour removers do: they use plant oils to neutralize plant odours.

# UNIQUE FLUORESCENT PIGMENTS!

Functional pigments: Two series of newly developed formaldehyde-free daylight fluorescent pigments show that formaldehyde can be eliminated without compromise, both in solvent-based and in aqueous formulations. The new technologies outperform their formaldehyde-containing predecessors in all important properties, especially with regard to lightfastness and storage stability.



PHOTO: ARALON COLOR GMBH

Goalkeeper gloves, a technical masterpiece

**AUTHOR:**

**DR. ISMAEL RAMI  
ARALON COLOR**

For about a decade now, fluorescent paints have been an integral part of many sporting goods. Fluorescent pigments are used in the production of diving suits, swimming aids, skis, bicycle helmets, balls of all kinds, sports shoes or goalkeeper gloves. In addition to the visual appearance, of course, the functionality of the respective sports article is a decisive criteria.

For example, goalkeeper gloves (picture above) are real technical masterpieces. Meanwhile, there are special goalkeeper gloves for the different grounds on which games are played on and even for different weather conditions. Whether a team wins the World Cup or the European Championship or not depends also on

the goalkeeper being able to hold the ball securely. In this connection the latex adhesive foam of the gloves play an important role. The production of latex adhesive foams is a very critical application where high temperatures, water and ammonia (simultaneously base and solvent) could attack the pigment particles. The neutrality (inertness) of the new luminous pigments with regard to functionality in the described application promises far-reaching neutrality and stability in other coating systems and paints with demanding process parameters. The ARAQUA fluorescent pigments withstood very well similarly difficult process parameters during the production of the limited edition of Coca-Cola glasses available in neon yellow and neon pink at McDonald's in the summer of 2017. The company planned a six-week sale, but in fact, they were sold out after only one week (picture page 26).

## Away from formaldehyde

Stable luminescent pigments are usually produced on the basis of formaldehyde. Since January 1st, 2016 formaldehyde has been classified as a carcinogen throughout Europe; but the decision to do this was already made in June 2014. It is therefore all the more important to replace old technologies with new formaldehyde-free production methods without compromising on the most important functional properties of daylight fluorescent pigments.

In the case of goalkeeper gloves, these are in particular the adhesive properties of the pigments in addition to luminosity, migration and light stability. The product safety must not be at the expense of grip and colour brilliance. Instead, the switch to formaldehyde-free formulations should also be used for further product improvements.

This could be achieved with two series of newly developed formaldehyde-free daylight fluorescent pigments for solvent-based and for aqueous formulations. Rui Patrício, the goalkeeper of the new European Football Champion kept the ball safely with the goalkeeper gloves owing their bright colour to these pigments, and in the final match against France the glowing gloves could not be overlooked.

The advantage of daylight fluorescent pigments (TLP) for aqueous applications over TLP for solvent applications is that they require less hardening and a lower degree of cross-linking. This enables finer grinding and is associated with an increase in colour strength. Older formaldehyde-free technologies used polyester chemistry, which, however, have considerable stability deficiencies when stored in aqueous formulations. However, the newly developed formaldehyde-free technology for aqueous formulations based on hybrid polymers is stable. In addition, the new fluorescent pigments show a significant improvement in light stability to 70-100% compared to the conventional fluorescent pigments based on melamine-toluene-sulfonamide-formaldehyde resins and even 350-500% compared to their counterparts based on benzoguanamine-formaldehyde resins.

### Critical properties of daylight fluorescent pigments

Fluorescent pigments are usually solid solutions (encapsulations) of fluorescent dyes in resins and polymers. The dyes are usually physically and partly also chemically bound to these carriers. The development of naphthalimide- and xanthene fluorescent dyes in Germany and England in the late 19th and early 20th centuries



PHOTO: ARALON COLOR GMBH

### Bright Coca-Cola glasses thanks to ARAQUA technology

marked the beginning of this class of effect pigments. Advances in polymer chemistry opened the door to new solid solutions of known dyes and other dyes available later - and thus to the further development and increasing marketing of fluorescent pigments.

Today, research and development focus on improving important functional pigment parameters, such as light stability, heat stability, colour strength, brilliance, opacity or transparency, solvent and water resistance, the prevention of migration, efflorescence and the escape of residual monomers. In particular, the replacement of formaldehyde in the formulations is on the agenda.

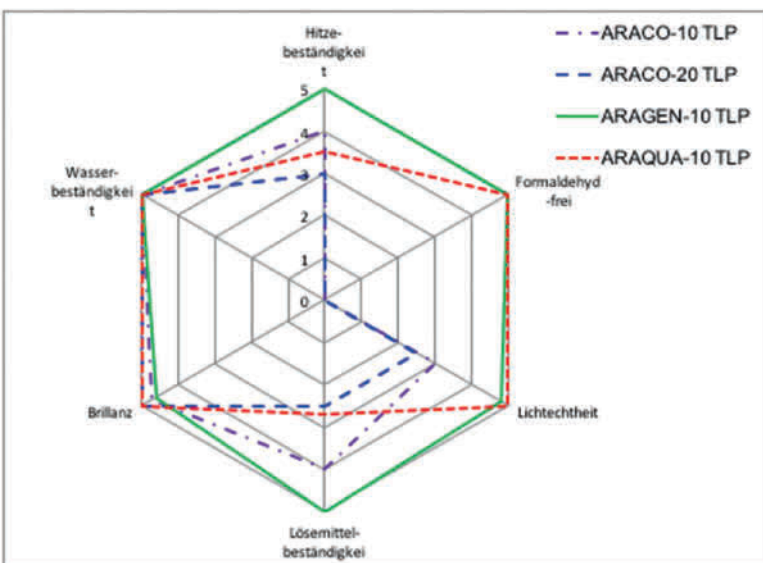
Using the melamine-formaldehyde pigments as an example it is explained which parameters can be modified to improve the technical performance of fluorescent pigments and where are the limits. Finally, the latest results and progress in research for better fluorescent pigments will be presented.

Compared to the formaldehyde-containing fluorescent pigments, the new ARAQUA and ARAGEN fluorescent pigments have the following properties:

1. Similar brilliance & colour intensity
2. Higher light fastness: approx. 2 times higher compared to conventional formaldehyde-containing fluorescent pigments and 3 to 5 times higher compared to the benzquamine pigments
3. Better water resistance and compatibility of the ARAQUA fluorescent pigments
4. Better and longer shelf life of the coatings produced with them
5. Higher alkaline resistance
6. Better solvent resistance of ARAGEN fluorescent pigments
7. Significantly higher heat resistance of the ARAGEN fluorescent pigments

Based on a new hybrid technology, the formaldehyde-free ARAGEN (AG-10)-TLP for PVC, PU, latex and solvent formulations as well as their counterparts for aqueous formulations ARAQUA (AQ-10) were developed.

In contrast, the new TLP grades use a formaldehyde-free hybrid polymer technology. In the case of the pigments for aqueous formulations, the polarity of the surface is also increased making them particularly easy to integrate. The lower degree of crosslinking enables finer grinding. This way the best results are achieved in aqueous formulations and oil or naphtha formulations are also possible. A comparison of the properties of the two new formaldehyde-free TLP types and two formaldehyde-containing TLPs is shown in the graph below.



GRAPHIC: ARALON COLOR GMBH

Stability properties of the formaldehyde-free series AG-10 and AQ-10 compared to the formaldehyde-containing series (AC-10 & AC-20).

## Conclusion

With the new technologies described above, we have taken a huge step towards our target of a comprehensive formaldehyde-free production and application of fluorescent pigments.

The new technologies outperform their formaldehyde-containing predecessors in all important properties, especially in terms of light and storage stability. The renunciation of formaldehyde is possible without any compromise, both in solvent formulations and in aqueous formulations.

The neutrality (inertness) of the new fluorescent pigments under extreme conditions (high process, thermal and chemical loads) is equivalent to far-reaching neutrality and stability in other coating systems and varnishes with demanding process parameters.

## Results at a Glance

- Formaldehyde is classified as a carcinogen
- Conventional formaldehyde-containing daylight fluorescent pigments should therefore be replaced by formaldehyde-free ones - without compromising on critical functional properties.
- Two series of formaldehyde-free fluorescent pigments for solvent-based and for aqueous formulations have been newly developed.
- Compared to formaldehyde-containing grades, both show at least equal brilliance with considerably

improved light fastness and storage stability. The solvent resistance of the new series designed for solvent-based formulations is significantly higher.

- The new daylight pigments use a formaldehyde-free hybrid polymer technology. In the case of pigments for aqueous formulations, the polarity of the surface is also increased, making them particularly easy to integrate.
- The lower degree of cross-linking enables finer grinding
- The formaldehyde-free daylight pigments for aqueous formulations are particularly suitable for aqueous coatings, aqueous artist paints and aqueous engraving, transfer and screen printing inks.

# BONDSTAR® - Environmentally Compatible and Effective

BondStar® is a sustainable product achieving excellent results as a dry strength agent in the waste paper processing industry and having no negative impact on the environment. This is confirmed by its successful use worldwide, as well as by extensive series of tests carried out by Lucas Wagner as part of his master's thesis at the Upper Austria University of Applied Sciences to investigate the influence of glyoxalated polyacrylamides on the anaerobic treatment of the waste water generated during the production of corrugated base paper.

PHOTO: NURI KERMAN



**AUTHOR:**

**NURI KERMAN**

About 40% of anaerobic industrial wastewater treatments in Germany are operated in the paper and pulp industry. The process is most commonly used by the manufacturers of packaging papers using waste paper,

especially in the production of corrugated base paper, which is produced with low specific amounts of waste water due to the closed loops. As a result of high recycling ratios, the waste paper fibers are becoming shorter and weaker leading to reduced paper strength. To counteract the resulting negative consequences, such as not achieving the required paper specifications or sheet break on the paper machine during the production process, a wide range of chemical additives are added, including dry strength agents.

With the BondStar® product range ACAT has developed synthetic dry strength additives used successfully worldwide. BondStar® is added to the stock suspension early in the wet-end. Due to the very good absorption a very high proportion of BondStar® is remaining in the paper and only a very small amount is discharged to the anaerobic stage with the wastewater flow. The product is offered in various concentrations to the market. Glyoxalated polyacrylamides have only a very limited shelf life. To solve the shelf life problem, ACAT has also developed a cost-efficient on-site technology at the paper mill for the production of BondStar®.

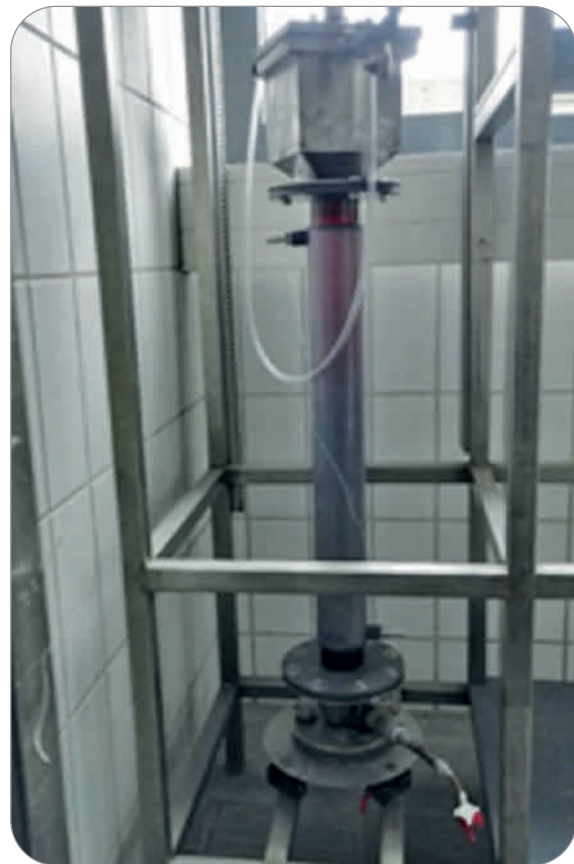
The use of BondStar® results in increased dry strength, less breaks, higher paper machine speed and an increased filler content in the end product. Similar to polymer flocculants used in sludge thickening and sludge dewatering in wastewater treatment plants, BondStar® has a cross-linking/bonding effect between particles oppositely charged to the polymer.

As part of his master's thesis at the Upper Austria University of Applied Sciences, supervised by Dipl.Ing.Dr.nat.techn. Kiril Atanasoff, in cooperation with the Ostwestfalen-Lippe University of Applied Sciences - Department of Civil Engineering, Laboratory for Urban Water Management, Lucas Wagner investigated the question of whether the use of BondStar® can have negative effects on the anaerobic degradation of the wastewater. To this end, on one hand he carried out extensive batch tests and on the other hand continuous laboratory trials with two parallel operating UASB reactors on a laboratory scale.

### Batch trials

The batch trials were prepared in 2-liter glass bottles and carried out at a temperature of  $37\text{ °C} \pm 1\text{ °C}$ . In the first series of trials, waste water from the pre-acidification of the industrial wastewater treatment plant of a corrugated base paper mill in Bavaria was used as substrate. In a further series of trials a 0.5 % acetic acid solution with a pH value of 6.5. Pellet sludge from the mill's own anaerobic plant of the corrugated base paper mill in Bavaria was used as inoculation sludge. In the Bavarian mill a 2 % BondStar® solution is used, in a quantity of  $66\text{ l/m}^3$  waste water.

It was assumed that different amounts of the dry strength additive remain on and in the end product paper. Conversely, this results in corresponding residual concentrations in the wastewater. These residual concentrations were simulated by using different amounts of BondStar® 2 % in batch preparations.



UASB reactor 1 made of plastic (above)  
UASB reactor 2 made of glass (below)



### Continuous laboratory trials

The laboratory tests carried out in the corrugated base paper mill were intended to simulate the effects of an incident at the production plant, for example in the case of a pipe burst or a leak in the storage tank. In the event of such an incident, different amounts of 2% BondStar® solution would be discharged directly into the waste water stream and thus into the anaerobic pre-treatment plant. The effects of higher BondStar® concentrations in the wastewater on the anaerobic degradation process in the UASB reactors should be analysed and documented.

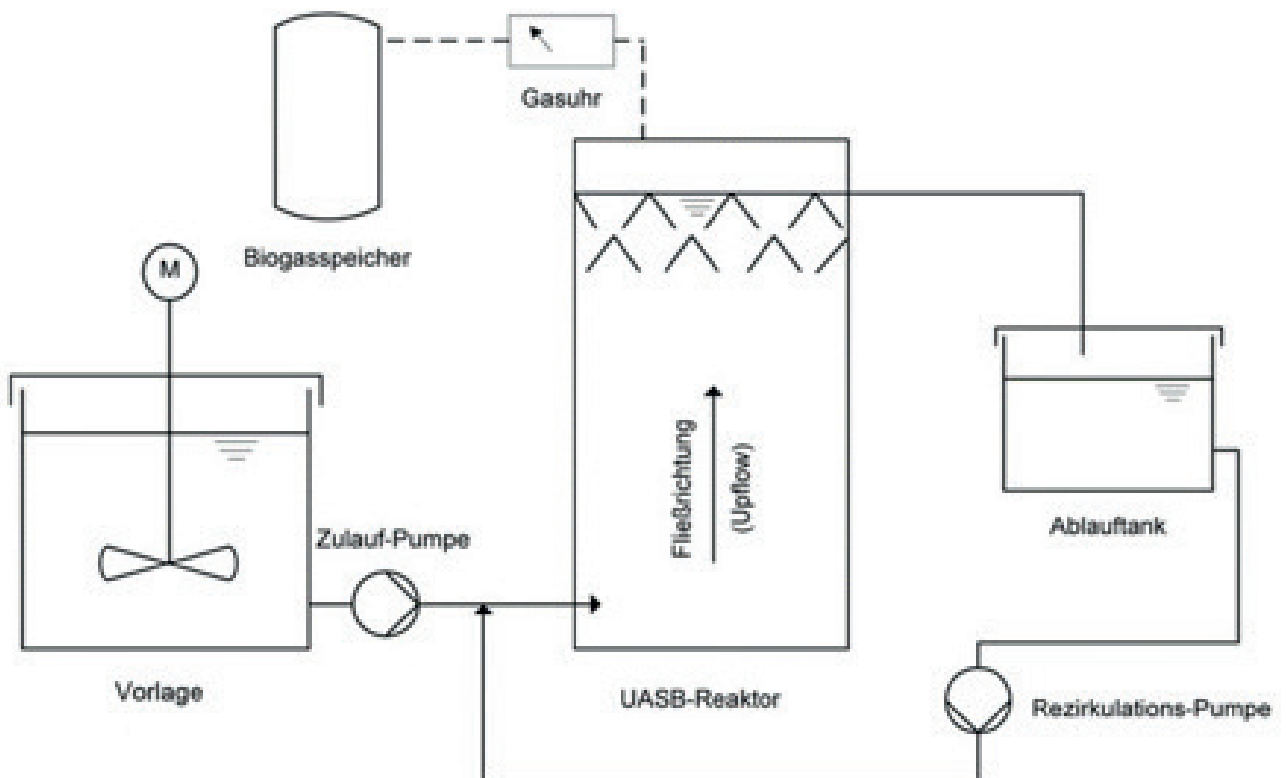
A continuous trial operation with abnormal high BondStar® addition levels was not carried out, because such an operating condition is far away from the reality and should already be avoided for cost reasons.

The pre-acidified waste water from a corrugated base paper mill's sewage plant was used for the trials. This wastewater already contained small amounts of Bond-

Star® due to the mills operation with BondStar® in their production.

The laboratory reactors for the continuous experiments were borrowed from the Laboratory for Urban Water Management of the University of Applied Sciences Ostwestfalen-Lippe. Various BondStar® concentrations were used to simulate fictional incidents. In the trials it was assumed that a BondStar® inlet pipe would break and a significant amount of BondStar® solution would flow directly into the wastewater treatment plant. In the operation itself, approximately 208.5 ml of BondStar® are added to 5 l pulp suspension of base paper mash.

The assumption was that about 10 % - 100 % of the BondStar® solution is not absorbed by the paper and is in the waste water. In the simulation of the incidents, it was assumed, for example, that a BondStar® feed pipe would break and part or the whole BondStar® (100 %) solution would flow directly to the anaerobic stage.



Schematic test setup of the UASB laboratory plants



The quantities of BondStar® (10 %, 50 %, 100 %) added to the waste water in the tests were intended to simulate that these percentages of the dry strength additive were not absorbed by the paper, but went into the waste water.

The quantity of dry strength additive for the respective incident simulation was always added once to the lab storage tank. The storage tank was filled daily with fresh waste water. The reactor was operated with wastewater without additional BondStar® for about 14 days,

In order to determine the effects of an additional quantity of BondStar® solution in the event of a malfunction, one of the two UASB reactors was operated only with pre-acidified raw wastewater, while a wastewater-BondStar® mixture with the respective BondStar® additives was added once to the second reactor. The two reactors were operated with almost the same COD loads and hydraulic retention times as in the anaerobic unit of the plant. The comparison should show whether and what effects occur in the event of an accident with BondStar®.

### **The following conclusions can be drawn from the trials:**

In her review of Lucas Wagner's master's thesis Prof. Dr. Ing. Ute Austermann-Haun from the OWL University of Applied Sciences came to the following conclusions:

- BondStar® increases Chemical Oxygen Demand (COD) in wastewater. This COD is degraded, recognizable by the higher biogas production. The data show that BondStar® does not inhibit the biogas production, on the contrary, that both the BondStar® trials with pre-acidified wastewater and the BondStar® trials with acetic acid produce more biogas and even the methane concentration increases slightly.
- The batch trials clearly showed that with the increasing addition of BondStar® the COD degradation is delayed, maybe due to the hydrolysis required first. The same effect could not be found in the continuous tests.
- For 87 days the reactors ran in parallel. Reactor 1 was fed four times with wastewater containing high concentrations of BondStar®. Neither the COD elimination performance, nor the biogas production, the biogas composition, the organic acid content or the FOS/

TAC ratio were negatively affected by the higher concentration of BondStar® in the anaerobic plant inlet.

- The trials showed that BondStar® is obviously degraded, which is shown by the increase of biogas production.

### **Result**

With the presence of BondStar® in the waste water of a paper mill, no acute or incipient toxicity, no inhibition of biogas production and COD degradation were detected under the conditions described. No acute or long-term inhibition or toxicity occurred. On the basis of the tests, it can be ruled out that the correct use of BondStar® will not lead to any lasting inhibition of methanation, neither during operation nor in the event of malfunctions that may occur repeatedly during paper production.

The last test approach, in which 208ml BondStar® were added directly into the reactor, simulated a very unrealistic scenario. However, it was still carried out to observe and describe possible effects. The addition of 208 ml to 3.75 l reactor volume corresponds to an amount of 55 ml/l corresponding to 55 l/m³ reactor volume.

In real operation, this would mean, for example, for a paper production facility for corrugated base paper, that approximately 70 m³, i.e. more than three tankers of 20 m³ each of BondStar® 2 %, would be added directly to the wastewater stream and would immediately reach the wastewater treatment plant and subsequently the methane reactors.

During this experiment Lucas Wagner could observe that the sludge formed a massive floating layer.

In other industrial plants Prof. Dr. Ing. Ute Austermann-Haun has observed that if a too large amount of polymer flocculants is added, the pellets are not able to remove the biogas produced due to the change in viscosity. As a consequence, the biomass floats in this case as well. The microscopic pictures showed massive sticking of the pellets and a binding of fine materials to the pellets. However, the pellets were still functional, i.e. their degradation behaviour was not affected.

In summary, it can be said that BondStar® is a sustainable product. Especially using waste paper for the paper production, it improves significantly production conditions.

PHOTO: CHRISTINE NESTLER-KENZIAN



Based on the tests, it can be ruled out that BondStar® will lead to a sustained inhibition of methanation.

In the laboratory tests, simulations of malfunctions with large quantities of BondStar® entering the wastewater showed no acute toxic or mid-term negative effects on anaerobic degradation.

Our special thanks go to Prof. Ute Austermann-Haun and Dipl.Ing. Heike Witte from the Technical University of East Westphalia-Lippe, Germany and Dr. Alexander Jäger from the University of Applied Sciences Wels, Austria for their technical and practical support in carrying out the batch and laboratory tests.

# QUALITY OF LIFE - Through the Year With the ACAT Art Calendar

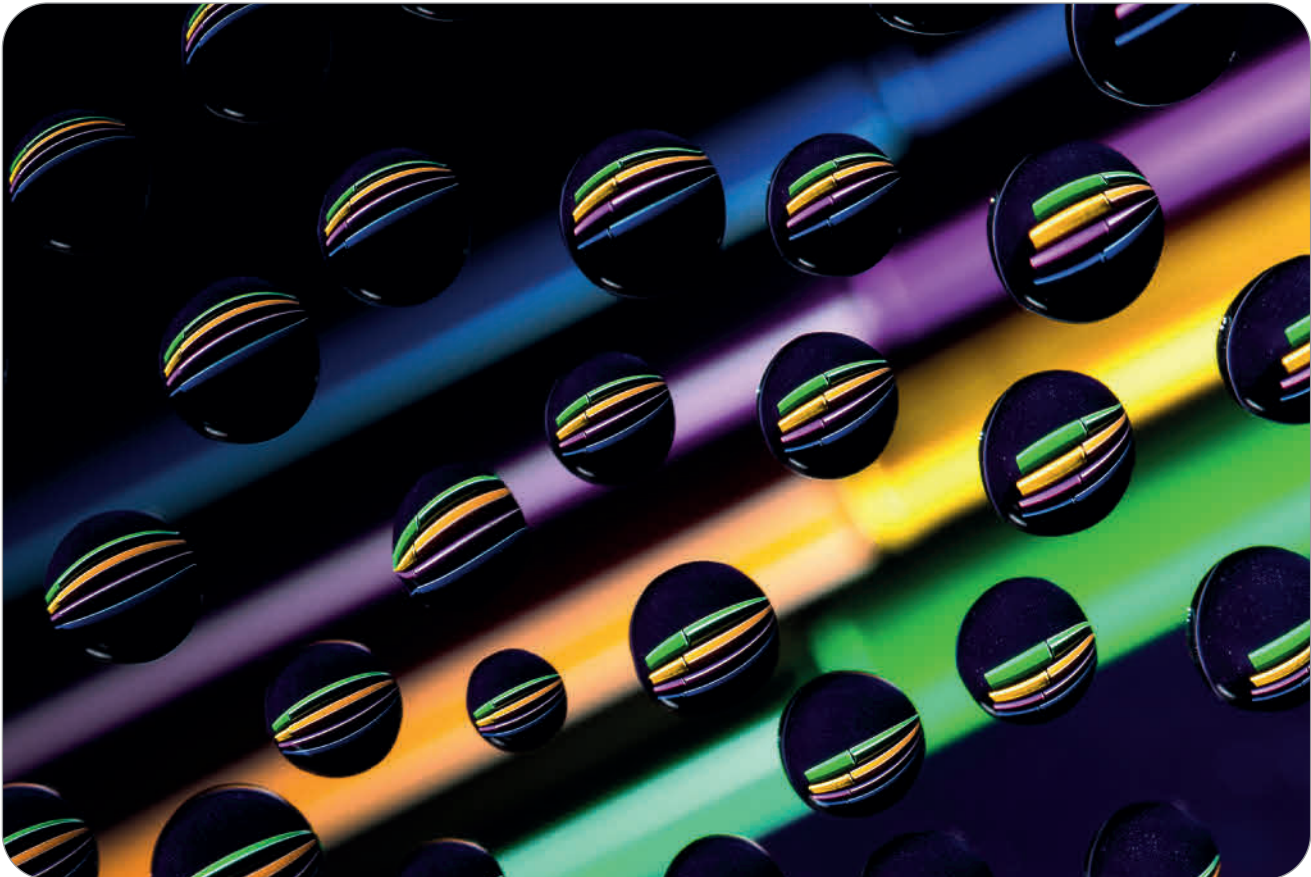


PHOTO: CHRISTINE NESTLER-KENZIAN

Quality of life - today seen as a key individual objective – is the focus of the ACAT art calendar 2020. The impressive pictures throw light from exciting perspectives on details of things we often see but we do not perceive in this way. The pictures were taken by our employee Christine Nestler-Kenzian, a true photo artist.

**AUTHOR:** **GERTRUDE MITTERBÖCK**

Until the 1970's, life has run along predetermined paths. Church, state and society determined the values to be lived. From the 1970's onwards, a strong trend towards individualization set in. The ACAT art calendar 2020 deals with the term QUAL-

ITY OF LIFE, which has become a catchword of our time and everyone thinks to know what it means. There are numerous definitions of it. For example, quality of life is defined as a combination of objective living conditions and subjective satisfaction.

The objective living conditions include income, an intact environment, health system, access to education, and the freedom to choose one's own lifestyle. Subjective well-being describes the perception and evaluation that people make concerning their own lives. A high level of quality of life is considered to depend on the satisfaction of human needs on the physical, psychological and social level.



### What does quality of life mean for EACH of us?

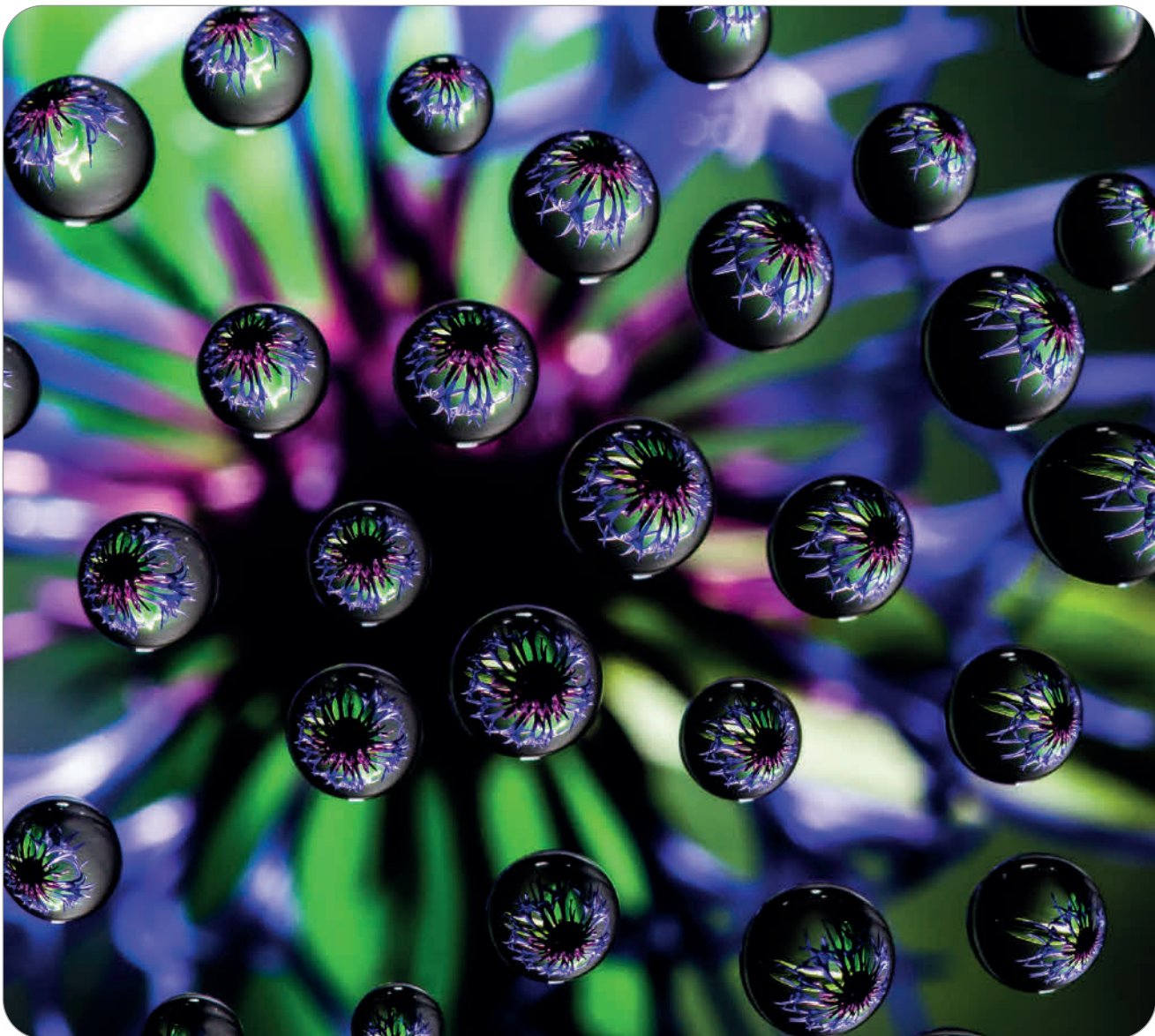
In most cases, the quality of life of a person includes satisfaction, the environment and the standard of living. A high quality of life does not always mean living in luxury, but can be achieved by various different circumstances. Accordingly, it is difficult to measure, because each individual has different demands and ideas of a high quality life. Quality of life is therefore always individual.

Nevertheless, quality of life is favoured by certain factors. These can be roughly divided into material and non-material factors. Some are only satisfied when they build up a certain material wealth, others when they can live happily with their families.

In order to increase your „own quality of life“ and thus be happier and more satisfied with your own situation, you should develop more THANKFULNESS. Thankfulness - is the secret tip for the way to a fulfilled and happy life.

It is pointless to focus on what you would like to have but you can never get. In this context ENVY plays a major role. It is the enemy of happiness. You should rather be proud of the things you already have and be happy about them. It is also amazing how your quality of life improves dramatically when you surround yourself with good, intelligent, kind, positive and lovable people.

You should always surround yourself with „positivity“.



PHOTOS: CHRISTINE NESTLER KENZAN

„Negativity“ and dissatisfaction rob your energy and pull you down. Even a small change in your attitude can lead to more satisfaction.

#### QUOTES AND REFLECTIONS ON HAPPINESS

- If you want to be happy all the time, you have to change a lot. (Confucius)
- If you are waiting for someone else to do it for you, to create your dream life, to fulfil your wishes, you will probably wait until the end of your life...
- Becoming aware of one`s own values, wishes and needs – of „What is important for me in life?“ - creates the basis for change and thus for increasing one`s own

quality of life. Change requires courage. Changes often involve risks.

- Happiness is the measure of how much you like your life.
- Happiness is self-sufficiency. (Aristoteles)
- Man forges his own destiny!

You should always do what you feel is right for you! A beautiful life - QUALITY OF LIFE - through personal and private happiness, satisfaction and lust for life.

In the ACAT art calendar further aspects are highlighted that define the quality of life. ●

# ACAT-CHRISTMAS DONATION: Clean Drinking Water by Using Filter Systems

PHOTO: MYCLIMATE FOUNDATION



Annually a project of the „my climate foundation“ helps 249,000 people in Uganda, including many primary school children, to obtain clean drinking water and it also saves 61 399 tons of CO<sub>2</sub>. ACAT supported this project with the Christmas donation 2019.

Lack of access to safe drinking water and inadequate sanitation and hygiene are responsible for the majority of 2.2 million annual deaths in Africa. Children under five are particularly affected, and over a third live south of the Sahara.

In Uganda at least 40 percent of the population boil water for purification. This procedure kills some pathogens, but wood is used to make fire. This is bad for public health and it damages the environment and contributes to the deforestation in this region. The „my climate foundation“ operates a climate protection program together with local and international organisations. The main goal is to provide the local people with a different, better access to clean drinking water using modern technologies and to reduce the consumption of firewood and charcoal, and thus also CO<sub>2</sub> emissions.

The drinking water purification systems used for schools consist of either a UV filter or an ultra-filtration system

and a water tank with a capacity of 450 to 1000 litres. The UV water filter cleans the water in three stages. In the first step, the coarsest impurities in the water are filtered out. Then an activated carbon filter absorbs the smallest particles and the volatile organic compounds and ensures that the water is odourless and tasteless. Finally, the water is irradiated with UV light. This kills microorganisms, like bacteria, viruses and other pathogens. To ensure smooth operation and a consistently good water quality, the filters must be replaced every six months. The filter systems themselves have an average service life of ten years.

„Now we always have enough drinking water. When we had to boil the water, it was never enough,“ says Susan Mubiru, head of the Namutebi Nkata Primary School happily. We also thought that this is a great project and that’s why we supported it with our Christmas donation last year.

# SAFETY TAKES PRIORITY: ACAT Driving Technique - Winter Training 2020

Annually we drive thousands of kilometers by car for our customers. Therefore a special training for driving skills on ice and snow-covered roads won't do any harm. And it was fun too!

**AUTHOR:** ERICH SAILER

After all, we take excellent care of our personal protective equipment at work. Our colleague Susi Durst is responsible for ensuring that our safety shoes, helmets and work clothes are always kept up to date. Another particularly important "tool" we use is our car. Sales representatives travel on business tens of thousands of kilometres a year, sometimes under the most adverse conditions.

In order to keep a cool head even in critical situations, routine driving skills are required in „all situations“. Although this comes almost naturally over time, it can't hurt to perfect it. For example, driving in difficult winter conditions.

During our snow and ice training in Göstling / Ybbs, dangerous situations were simulated, the braking and grip of our winter tyres were tested and the driving behaviour during a sudden evasive manoeuvre was simulated.

We had a lot of fun during the drift exercises and on the circuit. The ACAT cars 1 - 33 drifted, skidded, braked and accelerated. Thanks to our extensive experience in road traffic no dangerous situations occurred. The training was exciting and even for experienced drivers still instructive.

Many thanks to our instructor - the next winter can come! But first of all, we want to enjoy the coming spring and summer! ●

**During our snow and ice training in Göstling / Ybbs, dangerous situations were simulated, the braking and grip of our winter tyres were tested and the driving behaviour during a sudden evasive manoeuvre was trained.**



## SPRING AND TCM - ELEMENT WOOD

According to TCM, springtime nutrition is about detoxifying and purging the body and release the blockages formed during winter. Food with a bitter and slightly pungent taste is suitable for this purpose.

PHOTO: GEROLD FRIEDRICH/PIXABAY



### AUTHOR:

**SUSANNE DURST**

Barley water - ideal for detoxification!

Soak 100 g barley in 2 l of water overnight, drain the water and rinse the barley.

Bring 2 l of water to the boil in a pot, add the barley seeds, 2 dried figs, 1 small stick of cinnamon, a few cloves, a small piece of fresh ginger, 5 cardamom capsules, a pinch of salt and a dash of lemon juice. Let everything simmer for 1 ½ hours, add some organic orange peel for the last half hour.

Strain the barley. It can be used for a sweet breakfast or a spicy vegetable dish. Mix the barley water with the following ingredients:

- grated zest of half a lemon
- pinch of cocoa
- about ½ l apple, pear or grape juice

**Effect:** Resolves stagnation, brings the liver-Qi into flow, builds up energy and strengthens the kidneys.

Barley vegetables with tofu and shiitake mushrooms (4 pers.)

**Wood:** 2 tablespoons lemon juice, 4 cups cooked barley, ½ tsp Organic lemon peel freshly grated, ½ bunch parsley

**Fire:** ½ tsp turmeric, 1 handful of rocket

**Earth:** 1 -2 tablespoons sesame oil, 5 carrots, finely chopped 8 fresh sliced shiitake mushrooms

**Metal:** 1 onion finely chopped, 1 slice of ginger freshly grated, 1 bunch of radishes including leaves finely chopped, ½ tsp freshly ground Szechuan pepper, ½ tsp freshly ground coriander

**Water:** salt, 1 pack smoked tofu diced, tamari (soy sauce), hot water

Heat the oil in the wok. Sauté the onion, ginger, salt, lemon juice and turmeric, as well as the radishes, carrots, tofu and shiitake mushrooms, one after the other. Stir in the cooked barley, season with Szechuan pepper and coriander and, if necessary, add hot water. Season with lemon juice, lemon zest and soy sauce, sprinkle with parsley and serve with rocket salad. Bon appetit!



WELCOME BABY!

There are miracles that do not lose any of their magic even when they are repeated. Such a miracle took place on May 20th, 2019. On this day Malyn Lia Sparvieri was born - weighing 3240



grams and 50 centimetres tall. Her parents are overjoyed and her big brother is incredibly proud and in love with his little sister. The ACAT family wishes Malyn Lia only the best in her life!

ANNIVERSARIES

Erich Sailer - 35 Years Management of ACAT Environmental Technology

In the early 80s, after a 3-year start-up phase, Polymer chemistry made its entry into the brand new sludge dewatering technology. And for the first time it was necessary to hire a new employee. After 3 years as a lone fighter I looked for my very first employee and after some unsuccessful job interviews I found him! At the beginning of September 1984, a very young, dynamic and slender young man named Erich Sailer got into my car for visiting together the first sewage treatment plants. Without hesitation he rolled up his sleeves to start the first experiments with the sewage sludge. That's when I knew - this guy has potential! After graduating from a technical college for technical chemistry and with a few months of professional experience in a laboratory, the pioneering work in environmental technology was just right for his adventurous spirit and his talents. Under sometimes difficult conditions we have built up the ACAT Environmental Technology step by step and Erich had the unique opportunity to experience all technologies of sludge dewatering from the very beginning and he was able to gain an enormous wealth of experience,



which is second to none! The rapidly growing market has also given broad-based growth for our environmental team and today Erich very successfully manages not only the largest environmental department of the ACAT group in Vienna, but also our office in Hungary and our commitment to the environmental engineering machinery. All this in addition to his management tasks in the Division Management for Environmental Technology of the entire ACAT group. Back then – in 1984, at a time when there was no fax machines or mobile phones, and when ABBA and Elvis Presley were the stars of the music heaven, I never dreamed that I would write these lines 35 years later! Erich - in deep respect for your great professional career, we thank you for your great achievements and your loyalty, but also for your great enthusiasm and the long wonderful time together - because sometimes we really had a lot of fun on our way up! I am looking forward to many more years of working together and to the mountains lying ahead of us!

MZ

Uschi Fischer-Polt 30 Years for ACAT

In April 1990, the year in which the Berlin Wall was torn down and apartheid was abolished in South Africa, a further foundation stone of our group of companies was laid! After completing her training at the commercial school, Uschi Fischer joined our company to strengthen our order processing and our internal customer service. She plunged into her work with a lot of enthusiasm and today, 30 years later, after founding a family, she is even more



deeply involved in the day-to-day business and, with an experienced and sure hand, she ensures the timely supply of our paper customers in Austria and Eastern Europe. In the early days of her professional activity the tools for order processing tools were still very simple. The orders were handled exclusively by hand without any computer support. At that time

Continued on page 40

PHOTOS: CHRISTINE NESTLER KENZAN

ANNIVERSARIES

*Continued from page 39*

we already had a mainframe computer system, which today looks antique. It had a statistics system, but nothing to optimize the process. We received the orders by telex (this is an equally historical-looking device with a touch of Morse code) because the fax machine had not yet been invented. Nevertheless, the deliveries arrived on time at the customer, and that is why then as now our customers, suppliers and colleagues have the highest appreciation for Uschi.

But the greatest treasure of our “good soul” is her incredible enthusiasm, her verve and the joy with which

she is working. It is her deep personal concern that the expected delivery arrives at the customer on time, that the processes run smoothly and that each customer receives perfect support! The power can fail and all the computers can break down, as long as the phone is working and the trucks are driving, the ordered goods are delivered on time! If that happens, she handles the orders by hand - just like she did 30 years ago!

Uschi - we are proud that the ACAT spirit continues to flow in your veins and we thank you for your loyalty and for your daily excellent work! We look forward to many more years of working together!

MZ

Alex Frank Celebrates His Successful 30 Years in the ACAT Group!

On the same day in April 1990 as Uschi Fischer – another new employee, a young man, started working at our company: Alex Frank. He had completed the HTL for chemistry in Wels and he had a several years of practice. Full of ambition, he started our new and so far hardly worked mainstay, the industrial chemicals, as a pioneer and a lone fighter. It took a lot of perseverance and skill to capture a market in which we were completely new and therefore unknown and to win step by step, customer for customer. But with a lot of competence, diligence and effort, he succeeded in this outstandingly and soon the first fruits of his hard work appeared.



The rapidly growing demand for support in our rapidly growing engagement in the paper industry and to enrich his wealth of experience led Alex to move into this area of responsibility in the course of the 1990's. Here, too, he was significantly involved in the development and the massive expansion of the department, and he was able not only to learn the specific technology, but also to expand his commercial knowledge. During this time, he acquired a comprehensive knowledge in the areas of chemical application technology in paper production and environmental technology - so that today he is well acquainted with the entire field of activity of the ACAT Group.

In 2010, our company made a significant expansion

step towards the global paper industry and Alex took over the administrative back office for sales support. His area of responsibility ranged from product management to the preparation of legally relevant sales documents, from purchasing to patents and trademark rights. This is a truly broad field, which brought him enormous experience and which he built up with competence as usual.

But time didn't stand still, and a few years later it was inevitable to reorganize the ever expanding industrial chemicals

division. In 2012 Alex was appointed Division Head of Industrial Chemicals and with his experienced hand he has brought this business field to blossom. In addition, at the beginning of 2019 he took over the management of the subsidiary ACAT Vienna and thus today he is the head of one of the most important companies of the ACAT Group.

Alex, to this day this has been a truly brilliant career - from the young, small application engineer to the managing director of a 20 million EUR group company. At this point one can only congratulate respectfully and take off one's hat! We thank you for your 3 decades of loyalty and unbroken enthusiasm and your contribution to the ACAT spirit! We wish you continued success for the coming decade of your work and we are looking forward to continued good cooperation also in the future.

MZ

## ANNIVERSARIES

### Susanna Weinrother – A Quarter of a Century in Order Processing at ACAT Vienna

As in the mid-1990's the number of orders increased at a gratifyingly rapid rate, the capacities for order processing were exhausted. After an intensive search, we have found the right person!

In June 1995 Susanna Weinrother joined our company to relieve Uschi Fischer. With the growing number of customers, the workload of the back office support in the Environmental Technology Department increased significantly.

Susi was integrated very quickly into the „ACAT spirit“ and into the team and she worked tirelessly side by side with Uschi for the punctual delivery of goods and a comprehensive customer support.

When, towards the end of the 1990's, ACAT started to supply not only environmental chemicals but also mechanical engineering and equipment for sewage treatment plants, she discovered her love for plant



engineering and became the soul and central person for plant-related order processing.

At the turn of the millennium, we realized that manual order processing had become too costly and that the IT solution for companies offered at that time would bring us a significant gain in efficiency. Susi has taken the first steps and together with our accounting department she has launched our very first ERP system.

Due to the changing times, Susanna has another interesting field of activity now – the global order processing and shipping logistics, which she is looking after excellently with her experienced hand.

Dear Susie, we thank you for 25 years of loyalty and for your great achievements and we are looking forward to the coming decades of working together!

MZ

### Susanne Durst - Celebrates Her 20th Anniversary in ACAT Administration and Marketing!

Shortly before the change into a new millennium we realized that due to the continuous growth we could no longer run the company administration, and the organization and support of trade fairs, events and the growing marketing activities on the side. Susanne Durst came just in time. From July 1999 she massively strengthened and expanded our internal sales activities.

It is unbelievable how much effort and work goes into the „things behind the curtain“, from format templates, brochures, promotional gifts and certification work to events and trade fairs. There is no ACAT trade fair Susi does not organize from stand construction and design up to final organization and support, and no printed work - from business cards to brochures to the internet website - that does not bear her signature. In addition, there are a few letters to write and a few assistant tasks for the management - and a few



1000 things more that the business requires. Over the years Susi has gained a lot of experience and she works so routinely that everyone gets the impression that many things would take care of themselves: That there is a stand at IFAT, which is representative and practical, admired by everyone and which also has a lot to offer in terms of culinary delights. The booth is a place all customers like to visit and they enjoy the nice support during good conversations - and in addition, she organizes the already traditional table football tournament including catering. But of course, all this did not happen by itself - It was Susi in accordance with the ACAT spirit!

Susanne we thank you for the great achievements and for your loyalty over the past 2 decades. We very much appreciate your excellent work in the back office and look forward to many more years of great cooperation!

MZ

ANNIVERSARIES

Giuseppe Forleo –  
20 Years ACAT

20 years ago the ACAT environmental team in Switzerland was still in its infancy. Therefore, one can say that the team and Giuseppe grew up together. In the beginning Giuseppe did the first handicraft work with his own private tools, later repairs and installations at customers' sites followed.



Soon the laboratory in the Basel office was too small and had to be enlarged. Giuseppe had the task of setting up a small workshop in order to be able to carry out the necessary work more quickly and flexibly. Today this is our warehouse and laboratory in Arlesheim.

Giuseppe we thank you for your tireless efforts for our company, but especially for the ACAT watertech and papertech departments. Your helpfulness is impressive and generous. Thank you very much!

POB/VC



Josef Söllner: After  
20 years it's enough

In the 1990's we tried to convert chamber filter presses to polymer operation together with the company TIB and with the help of Josef Söllner, a specialist for filter presses. This is how we met for the first time. Soon afterwards Josef found his new "home" at ACAT. For 20 years he has been driv-

ing throughout Austria for our company, replacing pumps, repairing filter presses and much more. He did his work with great pleasure. But once, it's enough! On December 1st, 2019 the most stressful period of Josef's life began: the retirement. Finally, there is time to do all the things you've always wanted to do. Asked for an appointment, the usual answer of every retiree is therefore "no time". Dear Josef, all the best for your well-deserved retirement! I hope you succeed in doing all the things you set out to do. I'm afraid that then your retirement will be very restless!

ES

Jasmin Thalmann  
15 years at ACAT

One thing is for certain: without Jasmin, nothing works at the papertech department. With the highest sense of duty, precision, intelligence, untiring commitment she coordinates the order processing with her unique charm. In the past 15 years, Jasmin has certainly spent more time at the company



than with her loved ones at home. She was a guarantee that there were no delivery failures in all these years! She handles even complicated, sometimes seemingly hopeless situations, quickly, in an exemplary manner and to everyone's satisfaction. Multitasking is one of her strengths, and her communication with customers and colleagues is always professional. This makes her very popular with everyone. And last but not least: Jasmin is my right and my left hand, she makes my work so much easier. Thank you! Jasmin, we are all very proud of you - and you too have really every right to be proud of yourself!

NK



Gerhard Zima goes into  
(active) retirement

Gerhard Zima has been working for ACAT for 16 years. During all these years he has been very committed to the ACAT chemtech division and he has been particularly successful in serving the filler market. One outstanding achievement, however, was the successful market

development of dyes and pigments, taking it from zero to 100. I particularly admired his ambition to always learn new things and to acquire the respective technical knowledge in a very short time.

Gerhard will retire this May. Knowing him, there will be no rest. When he is at home, he will spend even more time with his granddaughter. But it is planned to travel through Europe with a camper. I would like to thank you for the excellent cooperation and on behalf of the whole team I wish Gerhard good health and many more fulfilled years and beautiful journeys.

FR

## ANNIVERSARIES

Karin Pruckmair  
10 Years ACAT



Karin Pruckmaier is responsible for the preparation and administration of safety data sheets and technical data sheets. She is our contact person for inquiries regarding chemicals legislation and she manages all necessary official notifications. Karin developed the very complex software for the creation of safety data sheets from scratch. She distinguishes herself through precise research and great diligence. In her private life Karin is currently intensively engaged in the renovation of her house. Hopefully there will be some time left for her passion to sing in a choir. I would like to take this opportunity to express my sincere thanks for the 10 years of excellent cooperation.

FR



Christian Kozanda  
15 Years ACAT

For 15 years Christian has been planning, building, repairing and servicing wastewater treatment plants and plant components for the ACAT machinery and plant technology. From screens to huge screw presses, he knows them all. Christian is busy

around the clock, because he also has to take care of his farm and his animals. In his free time he can only relax on the back of horses.

As everyone knows, the happiness of this earth lies on the back of horses. This saying applies to Christian. He is only really happy when he is riding a horse in the Western style in the mountains of his homeland or in the Canadian wilderness.

ES

### Nuri Kerman: 10 Years Global Division Management Paper Chemicals



Incredible how the time flies! It has been a decade since Nuri Kerman, who previously worked at CIBA, took over the ACAT International Paper activities. After completing his study as a paper engineer at the University of Darmstadt and gaining some industrial experience, he joined Allied Colloids Germany in the mid-1990's as an application engineer and for the first time he came into more intensive contact with the application-intensive chemicals used in paper production. With the takeover of Allied Colloids by CIBA AG in 1998, he already continued his activities towards the management level. In 2009, shortly before the takeover of CIBA by BASF, he joined our company to push the internationalization of the ACAT Group in the paper industry.

At the beginning of 2010, a very dynamic period began with a massive and very successful expansion, first in the German-speaking area and then in other parts of

Europe and overseas. Not only the classic retention and fixing agents, but above all the dry-strengthening agents and new technologies and equipment techniques have been developed, which are second to none! After taking over the global divisional management of the Paper Division, Nuri has built up a very powerful team. Due to

its excellent service and competent application technology it has become a highly valued partner of the global paper industry leading to enormous growth subsequently.

We congratulate Nuri on these great successes, and we thank him for his loyalty and his extremely valuable achievements. We look forward to the coming decades of excellent cooperation!

MZ

NEWCOMERS

Joachim Hege

We succeeded in winning Joachim Hege as sales manager for Germany. On January 1st of this year, he joined our company to further expand our business activities.

Joachim has more than 30 years of experience in the field of paper chemicals.

He has successfully worked for several well-known suppliers in the sales and marketing of chemical additives and he is one of the best in his industry. He is characterized by reliability and conscientiousness, which are certainly key factors for his success. We wish Joachim every success!



NK

André Mattersteig

André Mattersteig joined our company last year. He is a paper engineer graduated in Munich and responsible for Eastern Germany. He brings his knowledge in the field of papermaking and in dealing with paper chemicals to our company in an excellent way.

André doesn't mind getting his hands dirty and therefore he fits perfectly into the ACAT team that has made „Technical Service is our Success“ its slogan. His other skills as an all-round technician are very helpful in his work. He is very likeable and has quickly integrated into the team. André, keep it up!



NK

Alexander Möller

Automation and electrical engineering are very important in plant construction today. ACAT is one of the few companies that operate their own plant engineering and construction

for the preparation and dosing of chemical additives. We always strive to offer optimal, tailor-made solutions for our customers. To ensure this, it was necessary to strengthen our team in plant engineering. Alexander Möller is an electrical and automation engineer with two decades of experience in the industry. He is also a „hobby screwdriver“ and therefore fits perfectly into our requirement profile. He joined our technical team on February 1st, 2020.



NK

Luca Faggionato

We welcome a new member to our envirotech team: Since November 18th, 2019 Luca Faggionato has been supporting our growing activities in the field of odour neutralization and he will help to expand them. In Massimo Bighetti's team, Luca will expand existing contacts and,

above all, acquire new customers, thus contributing to the achievement of our goals in this area.

Luca attended the „Politecnico di Milano University“ where he graduated in 2019 with a degree in „Materials Engineering and Nanotechnology“. He works voluntarily in the rescue service and he is a passionate ski tourer. He will work from our office in Milan and we are sure he will contribute a lot to our success in the environmental field.



MMB

## OUR PRODUCTS:



### **Specialty Chemicals for the Paint-, Building Supply-, Ceramics-, Polymer-, and various Chemical Industries**

- Defoamers
- Powder Additives
- Wetting and Dispersion Agents and Additives
- Thickeners and Rheology Additives
- Mineral Flame Retardants
- Pigments and Fillers
- Agricultural Products
- Binder



### **Innovative Environmental Technology for Improvement of Soil and Air- many Uses in Industry, Trade and Agriculture**

- Odour Control Aids and Application Systems for Several Industries and Commercial Applications
- Leading-Edge Technology to provide continuous on-site Odour Monitoring and Dispersion Modelling
- Biochemical Products and Compost Additives



### **Complete solutions for mechanical wastewater and sludge treatment**

- Complete Solutions and System Components for Mechanical Sludge Dewatering
- Process Engineering
- MAP-Equipment for separation of Magnesium – Ammonium - Phosphate
- Solar Drying Systems
- Screw Pumps
- Components of a Mechanical Sewage Treatment Plant
- Machinery Service / Spare Part Sales



### **Chemicals and Specialties for the Municipal and Industrial Effluent Treatment**

- Flocculants and Coagulants
- Ferric and Aluminium Salts
- Odour Control Aids
- Defoamers and Deaerators
- Make up and Dosing Systems



### **Chemicals, Minerals & Machinery for all kinds of Paper and Board Production Processes and Effluent Treatment**

- Retention Aid Systems
- Fixing Agents and Coagulants
- Bentonites and Flocculants
- Dry Strengths Products
- Ferric and Aluminium Salts
- Defoamers and Deaerators
- Odour Control Aids
- Machinery and Equipment

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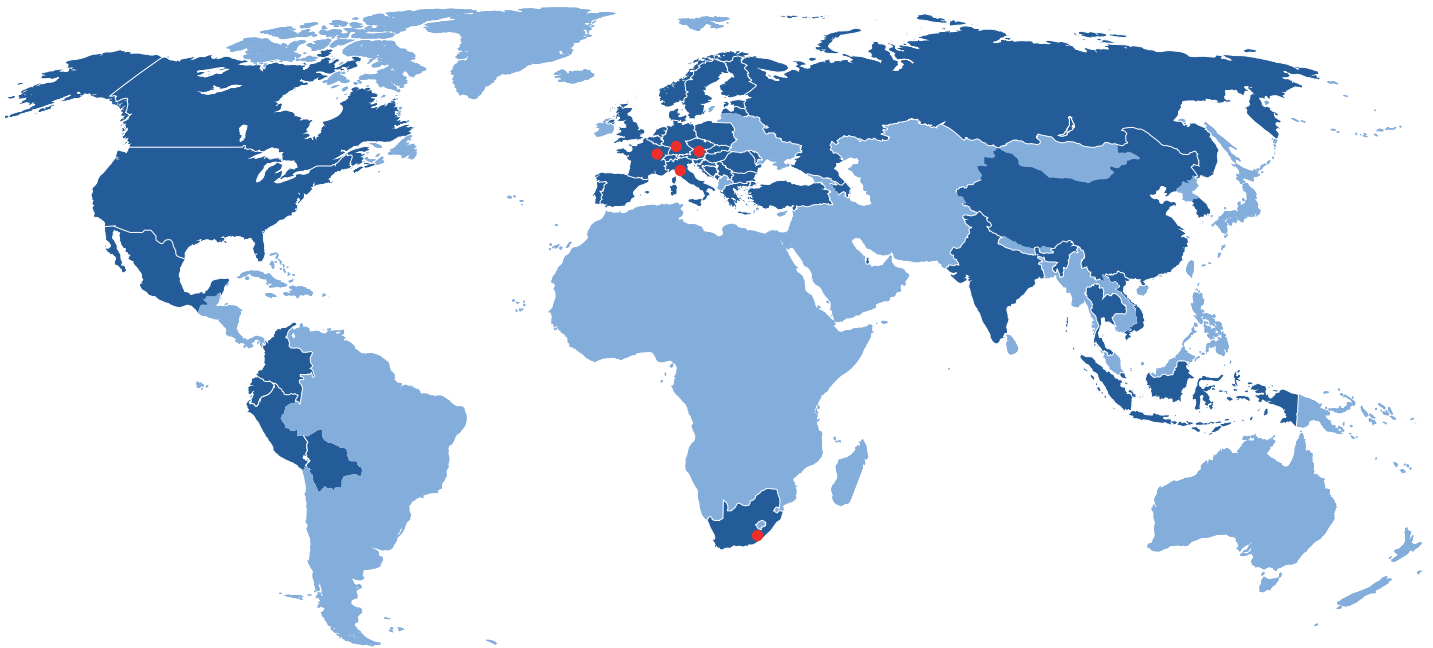
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