

inside acat

■ Newspaper for customers, friends and employees



The ACAT Paper Team Germany
captures Paper Industry

Our Knowledge – Your Solution

Thickeners for water-borne Coatings



Applied Chemicals International Group
Technical Service is our Success

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The dedicated German ACAT paper team is fully motivated, and ready to conquer new territories.



Within only one and a half days we have installed a new fine screen at the WWTP St. Niklaus/ Valais, situated 1,120 meters above sea level.



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Photo: Nestler-Kenzian

Manfred Zabl

Dear friends of our company!

The 23rd edition of our company "News" is to give you an update of our latest developments and achievements in product technology, as well as news of our activities and our employees. Of course, you will find this issue also as a PDF file on our website, but honestly – the printed form on a high-quality paper feels much better, and the reading of printed lines is more relaxing. Perhaps you lean back in a comfortable armchair delving into the content, or just flip through the variety of information scanning the headlines.

There is almost a touch of holiday over this scene and it is in strong contrast to daily screen work. It is certainly less enjoyable to scroll the magazine as a PDF download on the screen. It feels like an extra workload, and I think we have already enough of that in our everyday working life.

For decades, we have been very closely involved in a

variety of paper production processes. Due to a lack of demand we have been experiencing a strong decline in some paper productions for some time. The reason, however, is not a lack of consumer demand, but rather the commercial interests of media publishers. The digitally created content is cost-saving and many consumers have an iPad or a similar tool nowadays. Part of the cost savings is passed on to the consumer in order to bring him to an increased consumption of this variant. . The simple and location-independent purchase, as well as the favorable price combined with a wide range of e.g. E-books is certainly very appealing, but ...

Meanwhile, most of us are overloaded with digital information daily. 50 to 200 mails per day are no longer a rarity and (admittedly, 2/3 of these do not require a great deal of work, but one is under great pressure, because fast responses are expected on important contents, and one is afraid that more mails come in than can be handled. Many of us have to face this challenge in our daily work life, and the treadmill of the hamster wheel is strongly reminiscent of the Sisyphus stone, but our leisure time is also influenced by the screen, where social media plays the most important role. It can become a burden to keep an overview of thousands of "friends", and to keep them up to date with ongoing status reporting about yourself. Do we also really want to look at a screen when reading a good book or a magazine? I believe that our precious free time should have the highest possible quality. The familiar paper ensures distraction and relaxation from screen work - it increases the quality of leisure time!

I believe that we will experience a comeback of the most environmentally friendly media soon, and that the growing demand on printing and writings paper will increase production quantities again. In recent years, the rapidly growing mail-order business has increased the production quantities of packaging paper.

Whatever the future of paper-making may be, we will continue our activities full of energy and with a sense of responsibility and optimize our range of products with meaningful innovations in cooperation with our partners and customers.

With this in mind, I wish all our readers pleasant reading of the printed edition of INSIDE ACAT, happy and restful holidays and a happy, healthy and successful New Year!

Manfred Zabl
CEO Applied Chemicals International Group



IFAT REVIEW

In the 50th year of its existence, IFAT remained on the road to success, and of course, ACAT took part in the anniversary event.



The trade fair started out in 1966 with 147 exhibitors and today, after 50 years, with more than 3 000 exhibitors and about 140 000 visitors IFAT continues on its road to success. ACAT was also able to record a positive trade fair presence in 2016. Our stand was a platform for new customer acquisition and relationship management.

In particular, the "traditional" ACAT kicker tournament that has been taking place since 2008, was a great success and a good opportunity to get to know each other outside of daily business. This time we were able to select the winner from 16 teams playing 24 games. Thank you for your visit. We already look forward to the next meeting.

Text: Per O. Björn



17 and 18 November 2016 at the Europacenter Messe Wels: **ÖWAV SEWAGE SLUDGE SEMINAR 2016**

In recent years, the ÖWAV sewage sludge seminar has established itself as an important meeting point for the exchange of current experiences and developments in sewage sludge treatment, recycling and disposal.

Also this year a high-quality program with a large number of renowned speakers from Austria, Germany and Switzerland was compiled.

At the beginning of the first day the representatives of authorities, operators and associations dealt with strategic and conceptual questions concerning the handling of sewage sludge in Austria, Germany, Switzerland and the Czech Republic. The afternoon was dedicated to sewage sludge treatment, with a special focus on questions concerning CO-fermentation.

On the second day, the topic of material recycling and thermal treatment was on the agenda. One of the questions discussed was: how to combine both using the phosphorus of the sewage sludge.



The target groups of the fair are:

Operators of waste water purification and waste disposal plants, engineering companies, plant manufacturers, specialists in sewage sludge treatment, universities, technical colleges, employees of authorities and specialized services

The sales representatives of our watertech and machinetech divisions were represented with a small booth and they were happy with the lively influx of customers and interested parties.

Text: Susanne Durst

ALTENPFLEGE, THE LEADING TRADE FAIR 2017 IN NUREMBERG and ACAT will participate!

Altenpflege 2017, from 25 to 27 April in Nuremberg, is the leading trade fair for the care industry and the meeting place for management and decision-makers. On the three days about 28,000 visitors are expected.

The exhibitors at the Nuremberg Altenpflege fair offer solutions and new products for the areas of care, textiles and kitchen, up to building technology and room furnishing. FreshWaveIAQ® and our own brand Skyvell must not be missing.

In recent years FreshWaveIAQ® has successfully established itself in the care sector. It solves reliably odor problems in inpatient and outpatient care area with natural ingredients. Now our task is to further expand the market. To achieve this the comprehensive advice



of professionals, as well as the acquisition of additional resellers is necessary.

Text: Lorenz Dycke

THE GERMAN ACAT PAPER TEAM CAPTURES PAPER INDUSTRY

At the beginning of 2010, the German ACAT paper group was taken over and reorganized by Nuri Kerman. His committed team is fully motivated. It holds on to the tried and tested, but it is also ready to conquer new territories.

Photo: Spiola



AUTHOR:

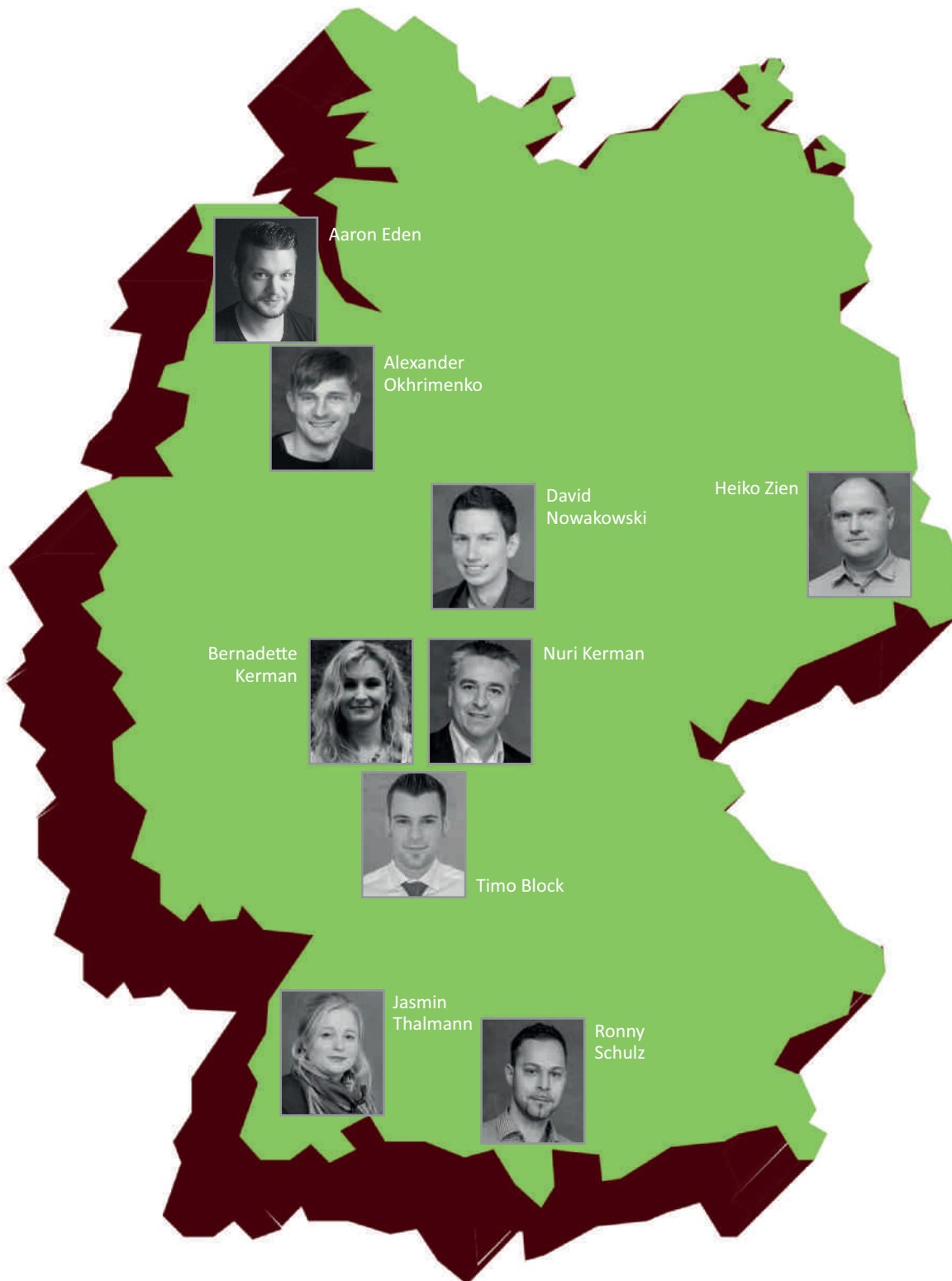
NURI KERMAN

Over the past years the constant growth in the fields of dry strength agents, retention agents, fixing agents and chemicals for wastewater treatment required additional manpower. For some years now the team has been also responsible for Poland, China and Turkey.

We are proud of our employees having the best requirements for this job: they are papermakers with a comprehensive knowledge of the use of chemicals,

they are dynamic, reliable and, above all, they have visions, which are extremely important in an industry changing as fast as ours. We are well-equipped and broadly positioned. Therefore, we are convinced that we can achieve continuous growth also in the years to come. We look forward to new challenges!

Nuri Kerman is responsible for the overall management of the German paper group. He also heads the "Global Paper Division". North and West Germany as well as Poland are headed by **David Nowakowski**. **Aaron Eden** and **Alexander Okhrimenko** are subordinated to him. Customers in East Germany are supported by our



experienced colleague **Heiko Zien**. South Germany is successfully managed by **Ronny Schulz**. The business assistants, **Jasmin Thalmann** and **Bernadette Kerman** successfully support field work employees by solving tricky logistics problems or organizing travels.

We are one of the few companies in the field of paper chemicals constructing our own processing and dis-

solving technology. Tailored solutions are a matter of course for us ensuring us a decisive competitive advantage. Recently, we have been able to win **Timo Block** as the new head of our paper technology department. His task is to further advance development work, to optimize existing technologies and to support or sales representatives.



RESEARCH AND DEVELOPMENT IN THE FIELD OF ENVIRONMENT

„Technical Service is our Success!“ In accordance with our company motto ACAT is always looking for innovative products and product developments, which offer our customers added value.

Photos: Spiola



AUTHOR:

ROMANO RENGGLI

The search is headed by Romano Renggli, who gathers information on innovations and evaluates the new technologies. As a result, ACAT is always up-to-date with the latest developments, and when they reach market maturity, they are immediately presented to our customers.

A brief summary of the current topics illustrates the main background work, ensuring that we will have an advantage because of our high-quality technical advice in the future as well, true to our company motto „Technical Service is our Success“

FLOCCULANTS

In various laboratory and machine tests a number of newly developed liquid ad powder polymers have been tested.

The most interesting results were achieved with the new liquid polymers. Higher dry substance content and significant lower consumption of polymer were achieved in plant trials. The new liquid polymers are further optimized, taking into account the feedback of users to be able to supply our customers with even more competitive products also in future.

ACRYLAMIDE-FREE POLYMERS

The acrylamide-free polymers were further improved. In certain applications - such as drainage of manure or excess sludge thickening - good results were achieved. It is very hard to expand the range of these products and to develop products with new charges, because it is extremely difficult to produce acrylamide-free polymers with low charges, but the product developers seem to be on the right track. The first laboratory samples have already been tested, but it is still too early for further statements.

POWDER POLYMERS

Currently, there are only a few innovations in powder polymers. However, new, slightly cross-linked products were successfully tested both in laboratory and in plant tests achieving higher dry substance values too.

MICRO CONTAMINATION

In Switzerland a law came into force prescribing the reduction of the pollution of the waters with micro-pollutants. By 2040 approx. 100 of the 750 Swiss waste water treatment plants (WWTP) have to be retrofitted with technical processes for the elimination of micro pollutants. The procedure is as follows:

- **Category 1 (K1):** WWTP with more than 80,000 inhabitant units
- **Category 2 (K2):** WWTP with more than 24,000 inhabitant units in the catchment area of lakes. In justified exceptional cases cantons are not obliged to adapt their WWTP, e.g. if the benefits for ecosystems and drinking water supply will be negligibly small.
- **Category 3 (K3):** In the case of river streams with a sewage content of more than 10%, which is not cleaned with organic micro pollutants, the cantons decide, which WWTP of their catchment area has to be adapted.

For reasons of proportionality, WWTP s with more than 8,000 inhabitant units are affected, in justified exceptional cases

also WWTP s with 1,000 to 8,000 connected inhabitant units have to be adapted.

Source: micropoll.ch

Three methods are used: ozone, powdered activated carbon (PAC) and active carbon in granulate form (GAC).

ACAT has dealt with another interesting alternative method, the EPFL. The laboratory tests are completed so far and the results are really promising. The EPFL method was the base, which was further optimized by our ideas. Now it has to be tested in plant trials taking four to six months. Only then reasonable statements can be made.

ODOR NEUTRALIZATION AND EMISSION CONTROL

Together with our external partner, we have developed a new range of odor neutralizers for the industrial sector. The products are based on pure natural oils and they can significantly reduce emissions and neutralize odors. The previous experiments showed a measurable reduction of H₂S emissions obtaining concentrations below the hazard threshold. The first results are promising. The products will be launched on the market, when ACAT has completed trials and when sufficient data are available.



OUR KNOWLEDGE - YOUR SOLUTION!

ACAT offers consulting services

In addition to the development of our own polymers, which we sell under the name FlocStar®, the ACAT watertech division has specialized in "consulting". We advise clients in municipal and industrial areas, true to our company motto "*Technical Service is our Success*".

AUTHOR: **VINCENZO CARCO**

OUR SERVICES INCLUDE:

- Evaluation of the plant using operating data.
- Definition of plant engineering measures.

Our priority is always to bring systems to optimum operating conditions using existing installations.

- Adjustment of operation to the ongoing changing waste water conditions, especially in the industrial sector.
- Training of staff in changing the operating mode
- Supervision of a plant, weekly check of values and - if necessary - recommendation for necessary interventions.

WE OFFER OUR SERVICES:

- at cost
- flat rate monthly
- flat rate annually

The contents of agreements are customized to the client's needs.

CURRENT REFERENCES IN SWITZERLAND ARE:

- Perlen Papier WWTP (paper manufacturer)

The problems to be solved were: poor degradation, foam formation and drifting at the outlet.

The operation of the plant was adapted and the staff were trained. Now we are regularly discussing the operational data to ensure rapid intervention when problems arise.

- Swiss Krono WWTP (Wood manufacturing company)

We had to get grips on the fine parts in the inlet, as well as on foam formation and on high quantities of undissolved solids in the outlet.

The operating mode is now regularly checked and, if necessary, adapted to the new conditions. During adjusting the staff are trained.

Photo: Perlenpapier



The operation of the WWTP of this paper manufacturer was adapted and the staff was trained on the new conditions. Now we are discussing regularly the operational data to ensure rapid intervention, when problems arise.



In this wood manufacturing company, the operation mode is regularly checked and, if necessary, adapted to the new conditions.

Photo: Swiss Krono

- Ditzler WTP (vegetables processing industry)

Higher amounts of some vegetables repeatedly cause an overload of the system and consequently unpleasant odors arise.

The operating mode was redefined and now it is con-

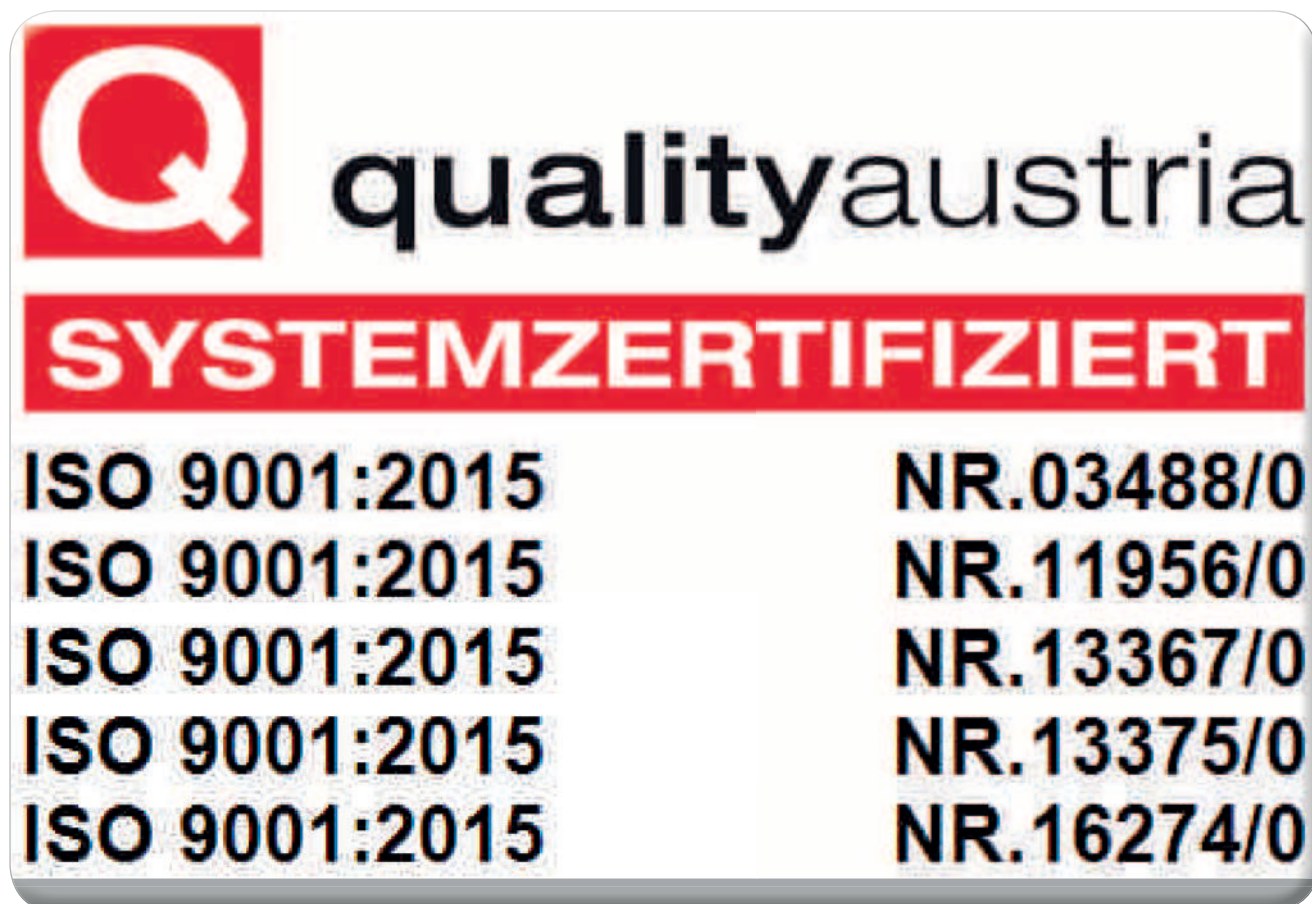
stantly adapted to the products processed. All steps are discussed and implemented with the staff (structural measures were necessary). ACAT staff were always present during discussions with the relevant authorities. In addition, the financial statements of the WWTP was prepared.



In the WWTP of this vegetable processing plant, the process was redefined and constantly adapted to the processed products.



SUCCESSFUL SWITCH TO THE REVISED VERSION OF ISO 9001:2015



ISO 9001 is the most important and accepted standard in quality management. It defines uniform principles of quality management and it serves customers as a proof that products and services meet specific requirements. To date, over a million organizations worldwide have successfully met the requirements of this international standard. Since 2003 ACAT has been ISO-certified and therefore we are part of the "ISO 9001 Community".

AUTHOR:

DANIEL BESTING

The decisive factor for our decision for an ISO certification was that this standard sees the customers at the center of the quality management and additionally, it is oriented towards processes and their constant optimization. We also want to develop our processes effectively and efficiently by continuous improvements. With ISO certification, we receive an external feedback with a view to ascertaining whether our quality management system meets current international standards.

In September 2015, the up-dated ISO 9001: 2015 was published, to respond to the changing expectations of all stakeholders. In its first year subsequent to the publication we decided to meet the modified requirements of this standard. To cope with this task new staffing of our quality management by Daniel Besting was necessary.

One of the most important changes introduced by the edition 2015 is the strengthened risk-based approach: risks and opportunities have to be identified, analyzed and evaluated, to take the necessary measures. When upgrading to ISO 9001: 2015, each division determined its risks and opportunities as well as its potential in workshops. The results were evaluated together with the management.

Another important innovation of ISO 9001: 2015 was the combination of the quality management system (i.e. quality policy and quality objectives) and the strategic orientation of the companies. This had been already the established practice at ACAT, but now it is reflected again and updated in written form within the context of a refined management model.

With the standard change, a comprehensive and system-

atic process management has become more important. Based on it we are regarding our processes as ongoing development processes and we are now working continuously on optimisation. We receive important feedback for further process indicators and their improvement by the new ISO certification.

Once again, ISO certification shows us how important it is for the successful handling of processes to have good internal communication. We started a project to upgrade the current intranet -and subsequently, our internal information platform- and to restructure information. Undoubtedly, this is a particularly important project for the promotion of internal communication and the distribution of information because ACAT is represented in several countries such as Austria, Switzerland, Hungary, Germany and South Africa.

Thanks to the successful switch to the "new" ISO-9001 and the certification, we received important external input for the further development of our quality management. We are convinced that we will be able to meet the requirements of our customers and our readers with the continuous improvement of our processes and services in the future as well. ●



INSTALLATIONEN - ANLAGENBAU - PHOTOVOLTAIK

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SKYVELL - NATURAL FRESH AIR!

The odor neutralizer with natural ingredients will be soon available at pharmacies!

Bad odors may have negative impact on our lives. Skyvell eliminates them on a natural basis and nothing but fresh air is left. To make this genial odor neutralizer available to a broad spectrum of the population, Skyvell will be available in selected pharmacies from January.

AUTHOR:

ALDO RANDISI



What applies to music, which, according to Wilhelm Busch, is "often felt as disturbing, because it is associated with noise," also applies to many things in our lives. Almost everything in life has two sides, one wanted and one less wanted. Often the latter one is still clearly olfactory perceptible, when the associated feeling is just memory.

For example, lovingly prepared fish dishes taste wonderful, unfortunately, the smell left in the kitchen is not. Nevertheless, it has come to stay, as well as the mix of alcohol and thick cigars, which like nestling in the cozy fireplace room or the strict aroma of worn-out sports shoes, the olfactory landmark of gym wardrobes.

The saddest example of unpleasant odors taking our breath away – in a double sense – are those caused by illness and / or incontinence. Even if the staff in rele-

vant nursing care facilities are keen to ensure high hygienic standards, the unwanted odors occur even faster and they are long-lasting. People, who have been valuable and useful members of our society throughout their lives, are condemned to spend their evenings in a breathtaking atmosphere. It is not easy for their relatives and it requires much love to overcome the smell-induced inhibition threshold during their visits.

"You can't make an omelette without breaking eggs" one could say with a shrug. But the eggshells are not left, they are disposed of. Disturbing odors also can be removed, and only pure, fresh air remains! For a long time in trade and industry, products have been successfully used that do not mask unpleasant odors, but neutralize them. Now these "odor eaters" are finding their way also into the private sector.

SKYVELL: OUR SOLUTION - YOUR PROFIT

Constant and recurring, disturbing odor dampens the mood and influences considerably social environment. Skyvell eliminates these odors effectively, pH-neutrally on a molecular level and it leaves a pleasant and subtle smell. We feel something to be really clean, if no bad odors are present.

Skyvell contributes significantly to cleanliness eliminating effectively every kind of bad odor ensuring that users feel comfortable.

WHAT MAKES SKYVELL SPECIAL?

- Eliminates odors without masking them
- Natural product, no aggressive chemicals
- Safe and harmless for humans, animals and environment



*We feel something to be really clean, only if no bad odors are present
Skyvell eliminates odors pH-neutrally on a molecular level. What's left is fresh air!*

- Decent pleasant scent -
No masking fragrances
- Non-flammable
- Non-toxic
- Does not contain solvents
- Biodegradable

As Skyvell products are made of natural and completely safe ingredients (lime, pine, cedar, aniseed, clove and pure Austrian alpine water) they can be used anytime, anywhere, even in the vicinity of children, pets and people with weakened immune system!

SKYVELL - SOON AVAILABLE IN PHARMACIES

The application area of Skyvell is very versatile, it is

suitable for all bad smelling areas. That is why we want to make our "odor eater" available to a broad spectrum of the population. We decided to sell it in pharmacies, because in this case Skyvell is also easily available for the older generation. Older people need more medication, they like to take advice, they have a main pharmacy and they look for personal contact. A demographic development shows that they will be the most important customer group of pharmacies in the future. With the sale of our Skyvell products in pharmacies, this steadily growing target group receives competent advice. From the end of 2016 / beginning 2017 Skyvell products will initially be available in pharmacies in Germany. Later, the products will also be offered in selected pharmacies in Austria and Switzerland.



VPS MINI SYSTEM 2.0

makes odours odourless!

The first version of the VPS mini system was very successful and it was well received by users in the area of hotels and business service. Therefore we decided to produce a further improved successor model. The VPS mini System 2.0 convinces users with reduced weight, optimized handling and increased performance.

AUTHOR:

LORENZ DYCKE

At the beginning of 2015 it was introduced and the first version of the VPS mini system had already met with the approval of users in the hotel and building services sector. It is not surprising, because the VPS mini system is a good alternative to conventional ozone devices that are not only not easy to handle, but they also generate harmful byproducts.

This success is not a reason for us to sit back contentedly. On the contrary! In the meantime, we further improved the device taking into account customer feedback. The result: reduced weight, optimized handling and increased performance.

What makes the VPS mini system so special?

WIDE RANGE OF APPLICATIONS:

Efficient in the odour control of smoke, soot, mold,

chemicals, waste water, fuel oil, food (e.g., curry), vomit, feces and urine, up to decay scent.

MOBILE:

- Easy to move, because it is equipped with swivel castors for example: between hotel beds.
- Large wheels allow moving even on uneven surfaces.
- Foldable handles facilitate transport by car.

USER-FRIENDLY:

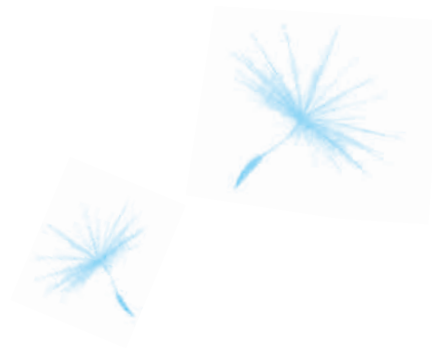
Easy operation with "plug and play". A time switch ensures the correct operating time.

FAST, SAFE & COST-EFFICIENT:

The VPS mini system is safer in use than ozone devices and it is faster than a hydroxyl generator. During use the area to be treated need not be free from living organisms.



Skywell



Natural Air Purifier
VPS mini System

A NEW FINE SCREEN for the WWTP St. Niklaus/Wallis



AUTHOR:

CHRISTIAN SUTER

The WWTP St. Niklaus is located in the Mattertal in the canton of Valais, about 1,120 meters above sea level. The plant is designed for 6,000 i.u., the annual average of daily intake is about 1,300 cubic meters.

At the end of January 2016, ACAT Switzerland received the request for a new fine screen in the inflow of the wastewater treatment plant (WWTP), in February we submitted the offer for this project and on March 10 we were awarded the contract.



ACAT offered the Fine Screen W & F Grimmel FFR 1.5E. Our advantages compared to the competitors offer were: the W & F Grimmel FFR 1.5E flat fine screen did not require channel broadening, the 30° position of screen grid, only little sand deposits in front of screen, 55 liters / sec. Qmax., and last but not least, of course, the price.

DATA OF THE INTEGRATED RAKE:

Qmax. 55 liters / second, gap width 3 mm, width of grate 400 mm, channel depth 940 mm, integrated

screening wash press RGWP 250, bagging facility with longo pack, ex., on-site control box, ultrasonic level detector, rake material: 1.4301.

The excellent preparation and cooperation with Klärmeister Florian Lager, allowed the installation and commissioning of the screen within only one and a half days. Since the end of June the screen has been operating trouble-free. We would like to thank Mr. Lager for his great commitment!



UPGRADE OF THE WWTP BIRKFELD

Modern sludge dewatering

The newly installed ACAT sludge water treatment plant of the Birkfeld waste water treatment plant (a municipality with 7,500 inhabitants) is running smoothly from the start and all guaranteed values are reached.



AUTHOR: CHRISTIAN KOZANDA

The waste water treatment plant Birkfeld was equipped with an outdated chamber filter press, which meant that the sludge had to be dewatered in mobile sludge dewatering units with decanters on contract basis.

In 2012, we carried out trials with our mobile screw press on site. They showed that this system is

ideal for the given sewage sludge (difficult sludge conditions, because in the course of the amalgamation of municipalities old sludge from small sewage treatment units had to be carried over and treated as well). The pet food factory C & D Foods Austria GesmbH is the largest industrial company indirectly introducing its sewage into the sewage treatment plant.



In 2013, we renewed their complete sewage treatment, consisting of screening, flotation, chemical stage and sludge treatment with a screw press. Due to the very good reference (extremely difficult fat-containing flotation sludge) and the tender in the spring of 2016, we were awarded as the best bidder for the delivery of a mechanical as well as an electrical sludge watering system, for the WWTP Birkfeld.

The new plant consists of a screw press type AS 505 L (nominal throughput 156 kg / h) and a discharge conveyor with a distributing conveyor and two side-by-side sludge containers. It was installed in a newly constructed sludge dewatering building. Since commissioning it has been running fully automatically and trouble-free.

Already after the disposal of the first sludge container the guaranteed values had been achieved.

We wish the operator and the sewage works operators Mr. Derler all the best for the future with their plant and we thank the planning office, the technical office for cul-

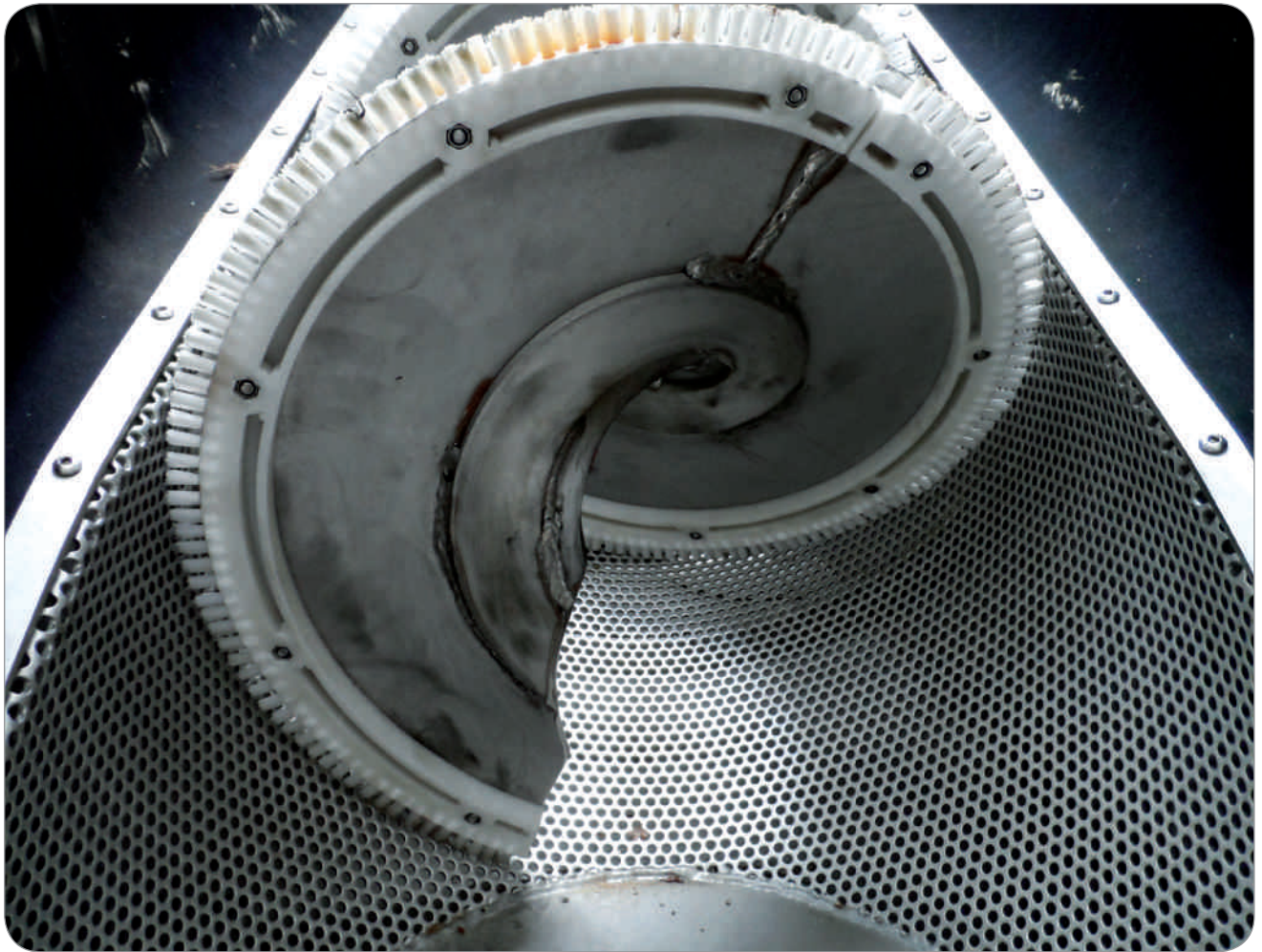
tural engineering and mechanical engineering, especially Mr. Ing. Dormann from Graz for the positive handling of this new project. ●



MECHANICAL CLEANING:

Two new plants – now state of the art

In the neighbouring wastewater treatment plants, the Croatian Geresdorf 940 inhabitants and Nikitsch 2,800 inhabitants in Burgenland (A), two mechanical cleaning systems installed by ACAT were put into operation – both are now state of the art.

**AUTHOR:****CHRISTIAN KOZANDA**

The municipality of Nikitsch decided on our conventional compact system with a spiral sieve, including screen washer and screen press, as well as a longitudinal grit trap with ventilation, grease trap and grease storage.

The system is designed for a maximum flow rate of 45 l / s (gravity drainage), a grit separation capacity of 95 % and a grain size of 0.2 mm in the aerated state. The screening is carried out with a six millimeter perforated plate. The grease, which is separated with an aeration rotor in the grease trap, passes into the grease shaft via a paddle. Afterwards it is pumped into the over ground grease collecting tank with a progressive cavity pump, and depending on the amount produced, it is disposed with suction vehicles.



Due to the extremely low gradient of the existing channel and the lowest possible required hydraulic resistance, in Croatian Geresdorf the decision was made on our flat-fine screen FFR1.0E, Qmax 20 l / s (gravity drainage).

Screening is carried out with a screen with 2.5 mm gap

width, followed by screenings washing and compression. Due to its size the sewage treatment plant is not permanently staffed and therefore, we decided for the variant with the hydraulic drive, because it is particularly reliable.



ASSOCIATIVE POLYURETHANE THICKENERS FOR WATER-BORNE COATINGS

Rheological behavior precisely adjusted for application!

In a more and more competitive environment coating materials must be able to be optimally used. The desired layer thickness should be applied in an optimum way in a single work step with simple processing behavior and good levelling. With wall paints often the first impression counts, when stirring. Also a reduced spattering tendency and sufficient sagging must be adjusted in order to stand out from competitive products.



Mediocre levelling of a wall paint when applying with a brush (fig. 1)

AUTHOR: DR. NICHOLAS BÜTHE
PHOTOS: MÜNZING CHEMIE GMBH
MÜNZING CHEMIE GMBH

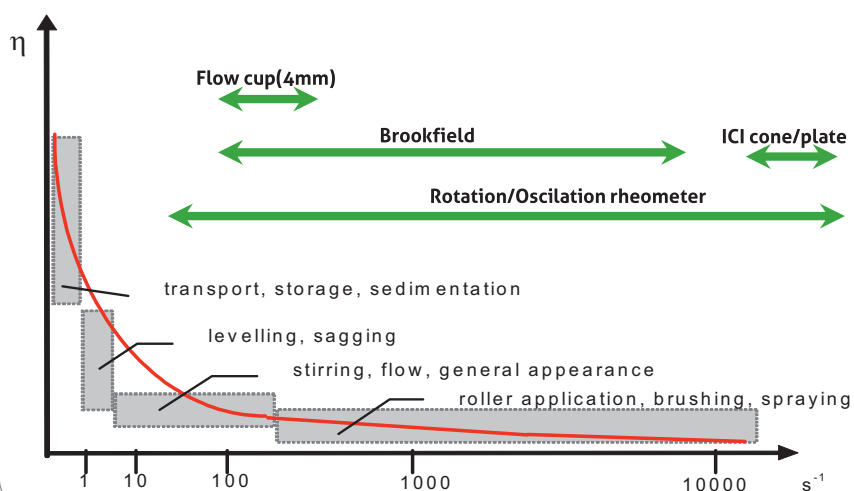
INTRODUCTION

Paints are used to achieve additional surface functions. The application spectrum ranges from traditional surface protection against aging and corrosion up to special optical or functional properties, such as complex metallic coatings in automotive industry or self-cleaning surfaces. A great deal of work is put into the development of paints to obtain protective, optical or functional properties. However, in the course of development the rheological behaviour of the coating

is often neglected, although it affects its entire life cycle including manufacturing, storage up to easy application by the end user (figure 1).

Often the viscosity of a coating is adjusted to a desired level with only one standard thickener at a specific shear rate, usually with flow times from the ISO cup or with spindle viscometers. However, the rheological profile of paints, which describes the viscosity at different shear rates, cannot be adjusted sufficiently this way. Viscosities at different shear rates have very different technical implications in the life cycle of a coating (figure 2). A complete rheology profile can be recorded only with expensive rheometers. Therefore they are still not available in every research laboratory.

Basics of Rheology - Rheometry

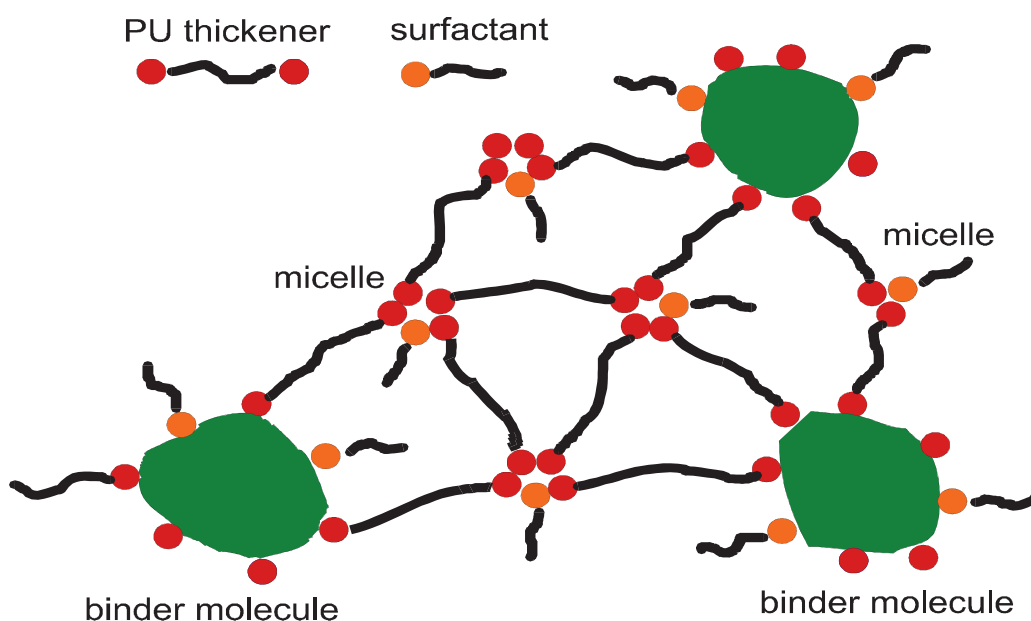


*Relationship
between rheology
and application
properties (fig.2)*

In general the classic thickeners based on cellulose and acrylates have strong pseudo plastic rheology profiles. The thickening mechanism is based on long, entangled molecular structures. Due to their voluminous chemical structure they are thickening the aqueous phase. These thickeners show good sagging resistance, but often it is associated with poor flow and high elasticity causing spattering. Additionally water resistance is adversely affected; this is especially important for anti-corrosion coatings.

TAFIGEL® PUR - ASSOCIATIVE POLYURETHANE THICKENERS

The thickening mechanism of associative polyurethane thickeners is completely different. Due to their hydrophobic-hydrophilic-hydrophobic structure they form aggregates in aqueous systems (micelles), whereby e.g. one thickener molecule can be part of two or more micelles linking them physically this way. The hydrophobic end groups of several thickener molecules are



Formation of an associative network with TAFIGEL® PUR thickener (fig.3)

Table 1: Molecular weight of selected coating additives

Additive	Molecular Weight [g/mol]
WETTING AGENT/EMULSIFIER	$\sim 10^2$
DISPERSANT	$\sim 10^3 - 10^4$
POLYURETHANETHICKENER	$\sim 10^4$
ACRYLATETHICKENER	$\sim 10^5$
CELLULOSE ETHER	$\sim 10^6$

forming micelles among each other. Beyond this they interact with the hydrophobic surfaces of the binder dispersion or with other hydrophobic ingredients of the formulation. This association causes the immobilization of the formulation components and thus causes thickening (see figure 3)

Under shear the associative network between the polyurethane thickeners and the hydrophobic components of the systems – this are mainly the dispersion binder – is destroyed temporarily. Once shear energy is taken away the associative network rebuilds after a short time, therefore levelling properties are much better than with classic cellulose or acrylic thickeners.

In the same way with polyurethane polymers other hydrophobic and hydrophilic components of the formulation are stabilized. The hydrophobic as well as the hydrophilic polymer segments of the thickener can interact with pigments and can provide addition-

al wetting and dispersing effects. Colour acceptance in tinting is increased, settling tendency and rub-out problems are reduced by the interaction with pigments and fillers. Furthermore, in general the molecular weight of polyurethane thickeners is significantly lower than the molecular weight of other thickener types such as acrylic thickeners and cellulose ether (Table 1). In combination with the lower elastic properties it leads – in comparison to cellulose ethers – to a significantly decreased spattering tendency of

dispersion paints (figure 4).

The chemical design of the hydrophobic-hydrophilic-hydrophobic segments of a polyurethane thickener allows to vary the associative behaviour and to adjust the desired rheology profile within a wide range (see figure 5).

For example: weak hydrophobic end groups and longer polymer chains tend to lead to Newtonian flow behaviour, as in the case of TAFIGEL® PUR 45, 55, 80, 82 or 85. This way the viscosity at high shear rates can be targeted increased. Excellent levelling, high gloss and the so-called brush drag are obtained with these thickeners, this means, that the paint transfer with a single brush stroke is increased.

On the contrary, with strong end groups and short polymer chains (as in the case of TAFIGEL® PUR 60, 61, 64 or 65) strong pseudo plastic rheology profiles are

Table 2: Guidelines for the selection of thickeners for different architectural and industrial applications.

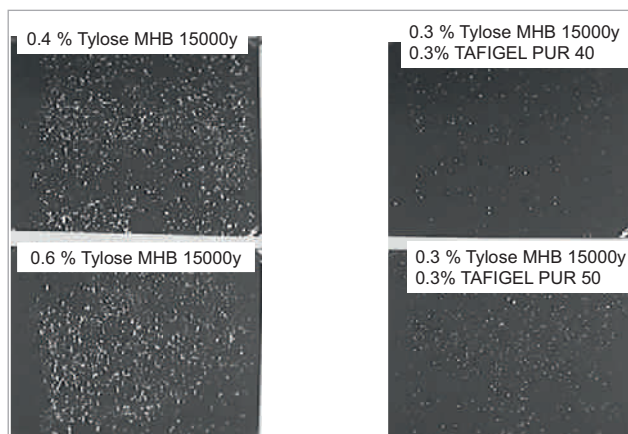
Selection Guide for Thickeners		Selection Guide for Thickeners	
Application	Recommendation	Desired Coating Property	Recommendation
Brush	TAFIGEL® PUR 40/41/48/45/80/85	Gloss	TAFIGEL® PUR 45/80/85
Roller	TAFIGEL® PUR 40/41/48/45/80/82/85	Sagging Resistance	TAFIGEL® PUR 60/61/64, TAFIGEL® AP
Spray	TAFIGEL® PUR 60/61/64	Open Time	Cellulose
Dipping	TAFIGEL® PUR 60/61/64	Storage, Sedimentation Stability	system depending
Flow / Curtain	TAFIGEL® PUR 40/41/48/45/54/80/85	Special Systems	Recommendation
Rolling (industrial) / Printing	TAFIGEL® PUR 40/41/48/45/80/54/82/85	PU, EVA binders	TAFIGEL® PUR 60/61/64, TAFIGEL® AP
		Silicone Resins	TAFIGEL® PUR 44/45/80/85
		Anti-Corrosion	TAFIGEL® PUR
		„Flop“ effect in metallic coatings	TAFIGEL® AP

obtained. Dispersion paints adjusted with these rheology modifiers have a high sagging resistance and an excellent spray ability. A typical application is, for example, the industrial thick layer spray coating for door and window frames.

Medium pseudo plastic polyurethane thickeners like TAFIGEL® PUR 40, 41, 48, 50, 54 or 52 have an universal rheology profile. They can be used for brush, roller and for spray applications. They develop their particular strength in combination with cellulose thickeners in wall paints. While the cellulose derivative with its water retention capacity provides the required open time, TAFIGEL® PUR improves levelling and reduces spattering drastically, for example, at brisk roller application. Table 2 gives a selection support for thickener types to be used in various applications for construction and industrial sectors.

SUMMARY

The associative polyurethane thickeners can be combined easily with each other as well as with all known thickeners types, often with synergistic effects. Their particular strengths are the specific adjustable rheology profiles. They have better levelling properties than classical thickeners, and higher gloss levels are achievable. Further advantages are: the higher water and scrub resistance and the higher resistance against bacteria.

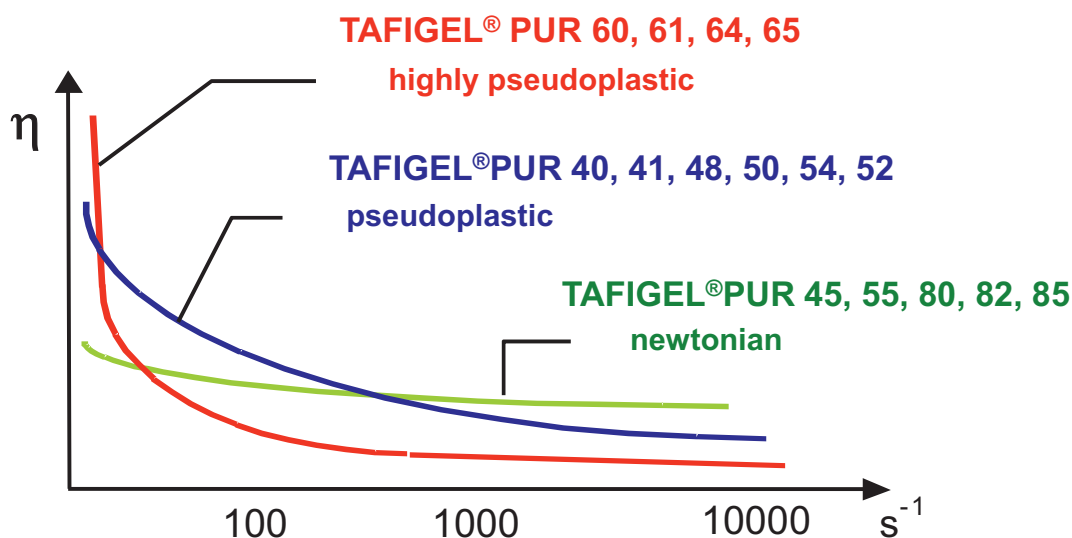


Reduced spattering tendency of a wall paint by combining cellulose and TAFIGEL® PUR thickener; comparison of thickeners regarding spattering tendency with TAFIGEL® PUR thickener (fig.4)

Open time and storage stability can be improved with a clever combination with cellulose thickeners.

The selection of a suitable thickener depends crucially on application field and application technique. With a proper selection and a clever combination the rheological behaviour can be adjusted appropriately and user-friendly. In a more and more competitive environment this is an ideal way of: Creating Additive Value! ●

TAFIGEL® PUR - Types of HEUR



Rheology profiles of different TAFIGEL® PUR thickeners (fig.5)



THE ACAT-ART CALENDAR 2017

Without animals, humans cannot exist - not a single day. Our earth is determined by the coexistence of humans, animals and nature. Sustainability becomes an end in itself in dealing with our world. The ACAT Art Calendar 2017 with the animal portraits of the famous artist Erwin Kastner is intended to make us aware of this. Once again Gertrude Mitterböck finds the right words on this sensitive topic. With this in mind: A successful New Year!

Erwin Kastner's oeuvre: A tribute to sensual pleasures

Erwin Kastner's work is characterized by watercolor painting. The light, fragile colour application of this art form sets standards the artist also strives for in other art techniques. The watercolor has taught him to work in front of the subject. That trains eye and hand. The proportions must be recognized intuitively and transferred. In addition, it is important to react quickly and spontaneously to the individuality of colors. Perception and pictorial implementation take place simultaneously, and the rapid change of light and shadow during the painting process requires rapid reaction. Almost every day, Erwin Kastner trains to be at one with motives.

... from the artist's website

„Grace and ease are the characteristics of Erwin Kastner's work. Talent, skill and, above all, experience is needed to achieve this quality. For many years, the artist, who was born in 1957 in Haag, Lower Austria, has been working on his work consisting of canvas works, watercolors and glass works. The artist enjoys a high reputation not only in his home town, where his glass fountain sculpture decorates the main square, he is also internationally well-known with exhibitions and book publications”

*From the magazine „Der Kunsthandel” 11/2011,
author Helmut Orpel*



Humans and Animals

Author Getrude Mitterböck

Animals have been our companions for thousands of years.

Animals have always been of great importance for us humans.

Animals are thinking and sentient beings.

Animals touch our feelings in good and in evil not without reason and remind us that we too have deep and strong feelings which we often do not dare express.

Animals have much higher vibrations than humans.

Animals use their right and left brain hemispheres simultaneously, in a way we should also do.

Animals are capable of the deepest love and often view the humans around them as their own family.

Animals do have a will of their own, but this is limited as they are basically governed by instinct.

Animals are part of nature. Nature and animals have far-reaching significance in our lives.

Each **animal** is unique in its own way and should therefore be preserved and protected.

“Respect for life” not only in connection with people but all life whether humans, animals or plants.

They all have their place in the world.

POTHOLE RODEO - A rally across the Balkans

Searching for Europe's last potholes



AUTHOR:

WILHELM SCHOBER

The spirit of adventure had grabbed us and we faced a new challenge – the Pothole Rodeo. For the third time this rally across the Balkans took place and this time we were part of it – Willi Schober and Andreas Zirngast. It should be possible to cope with the approximately 4,000 kilometers through eleven countries to the Black

Sea and back with a 20 year old cart costing 500 euros only. Such a car was found soon: we bought a Puch G.

The first hurdle was to make it roadworthy because this car could only be used for parts recycling. We invested a lot of free time in this project and we managed it successfully at the last minute. On July 9, 2016, we started in Graz together with another 130 other participants in 60 cars.

In seven stages the rally took us to Hungary and across the Carpathians to Romania. We crossed Bulgaria along the Black Sea coast, then we drove through Greece,



At the end of this adventure we reached the outstanding 8th place among 130 participants!

Macedonia, Albania, Montenegro and Bosnia. On the 16th of July we reached our final destination of Split in Croatia. It would have been challenging enough to master this route, but we had to cope with additional challenges during the trip, for which we got points for the final scoring. We reached the outstanding 8th place among all participants!

This adventure certainly was the greatest challenge we ever met, but we have decided to do it again in 2017, because we have not yet have discovered everything

to be seen at the Pothole Rodeo. Only once the Puch G refused his service on the approximately 4,000 kilometer route. After a small repair, he once again did his best and took us home safely.

But now he is at the end of his rope. Next time we want to cope the rally with a 190-year Mercedes-Benz 1983. We have recently discovered this car and are now licking it in to shape. So, let's do it again! Pothole Rodeo 2017, we are coming!

THE ACAT CHRISTMAS DONATION

Every year at Christmas, we donate on behalf of our clients to a beneficial organization the amount we have previously spent on Christmas presents. This year, UNICEF, the United Nations Children's Fund, received this support for its efforts to help children in need in the Syrian war.

AUTHOR:

PER O. BJÖÖRN

Technical advice, the trust that our clients place in us, in short, good business relationships are strongly based on personal contacts. In the past, once a year we said "Merci vielmals! Many thanks! ", to our business partners and customers with Christmas baskets or with similar small gifts, however, this gesture was inhibited partly by law and partly by customers themselves, not allowing hidden favors. The success of a company like ACAT, the success of the entire economy, depends to a large extent on the environment, on society and on stable conditions. We think it is important to pause for reflection - and to give something back in return. For this reason, several years ago ACAT decided to support a charitable institution every Christmas by making a donation on behalf of our customers. In the past we have donated money to Cancer Aid, associations for people with disabilities, the Red Cross, Doctors Without Borders and other social institutions.

This year, refugee issues based on the Syrian conflict have always been a big topic in the media and it is obvious that the Syrian population suffers and it is inadequately prepared for the coming winter and the cold

Foto: UNICEF Syrien/Aleppo/2016/Al-Issa



temperatures. That is why we donate this year's "Christmas money" on behalf of our customers to UNICEF, the United Nations Children's Fund providing direct emergency assistance to children in Syria.

We hope, it is also in your interest! We thank you for the good business relationship and we wish you a peaceful Christmas!

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Wir fahren, was Sie täglich brauchen!



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WONDERFUL „LUCKY BAG“

Great events often come from little causes: discarded mobile phones help families in need with the Ö3 „lucky bag“.

ACAT-employees are frequent mobile phone users; of course, only for professional purposes.

Customers and business partners can contact them by phone more or less round the clock. Today, nothing works without a smartphone, they have become a central switching point. Therefore, it is important that the small all-rounders are always state of the art, but what happens to the old-fashioned devices?

At ACAT great emphasis is placed on environmental awareness. It is a matter of honor for us not to carelessly discard our old mobile phones into the refuse, but we dispose of them in accordance to environmental regulations. In recent years we have given them into the Ö3 „lucky bag“. With this annual joint campaign of Caritas, „Licht ins Dunkel“ and the country's most popular radio station Ö3, old fashioned and broken mobile phones - the more the better - are collected and disposed of in an environmentally friendly manner.

The related work ensures jobs for people with low job chances. The considerable proceeds of this benefit action is used for families in need. We think this excellent example of a win-win situation and great recycling idea is worth being supported.



ROBERT MEISSL WENT INTO RETIREMENT

At the end of September our colleague Robert Meissl retired after 14 years of service. For all of us a beautiful time together has come to an end. A company is only as good as its employees. Without a doubt Robert was one of our best employees. He joined our company in 2002 and during his working life he achieved a lot of notable successes. Mr. Meissl has built up our business activities in Austria and in far-away Russia. Robert, thank you for that!

With Robert Meissl we lose a personality and a role model. He never considered himself too good for something, affectations were alien to him. Robert always remained modest. He never wanted to be in the limelight, he preferred to work hidden and he has been very successful for many years. His focus always was on customers. He was available for them, whe-



never needed, at any time day and night and even on weekends. His reliability, teamwork and precision were legendary. He was a technician of the "old school". In spite of this, or because of it, scarcely anybody was able to hold a candle to him, not even modern measuring instruments!

Robert Meissl always treated his customers and colleagues with dignity and respect. No matter whether he was old or young, experienced or inexperienced, everyone was just a human being for him.

One thing is certain: in addition to his professional qualification, we will miss his extensive experience!

We wish Robert Meissl only the best and many exciting challenges in his well-earned (un) retirement. Above all, we wish him health and energy for many, many beautiful years!
NK

NEWCOMERS

Piotr Szablewski:

We found the needle in the haystack. Since September 2016, Piotr Szablewski has been a new member of the ACAT team. He is now our sales manager for our Skyvell and FreshWaveIAQ-® products in Germany and the Benelux countries.



Photos: Christine Nestler-Kenzian

He is a trained geriatric nurse and has been working in the care sector for 6 years. In 2010 he moved to field service, where he was able to prove his sales skills. Piotr is very communicative and he is familiar in dealing with people. His task is to increase the level of awareness of our products in his sales territory.

After work Piotr likes playing basketball and his heart beats faster if he is allowed dealings with older cars. We are convinced that Piotr Szablewski is an ideal addition to our ACAT team and that we have acquired a valuable employee.

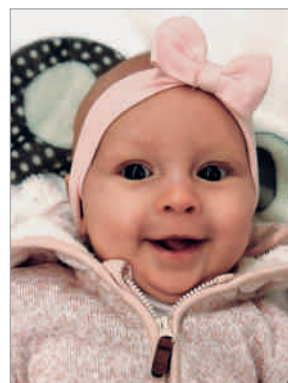
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WELCOME, BABIES!

Sonja Marie has arrived!



Sonja Marie has kept her parents Doris and Stephan Fischer on the tenterhooks. Therefore, joy and relief were great when the sweet little lady was finally born on the 7th of August – fit as a fiddle, 50 cm tall, with a weight of 3,310 g, and -simply adorable. The ACAT family wishes the proud parents and their baby all the best.



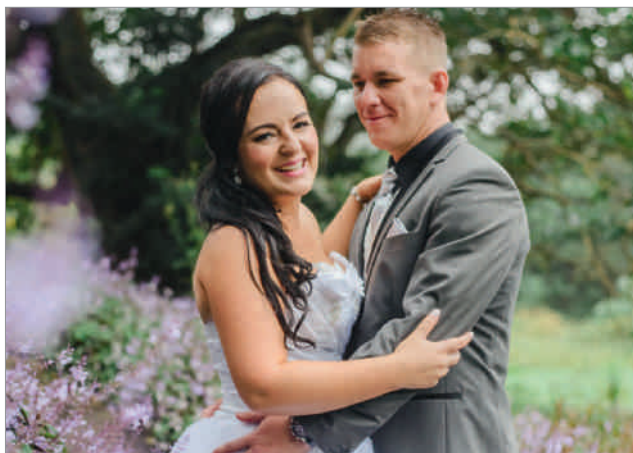
Princess Leya:

Mama Bettina and Papa Theo Weinbrenner will never forget the 17th of June, 2016: On this day their daughter Leya was born: 2990 g heavy, 51 cm tall and really perfect. The sweet princess did not only take the hearts of her proud parents by storm, but also the hearts of all relatives

and friends. Congratulations!

MARRIAGES: THREE COUPLES HAD THE COURAGE!

Kirsty Austin & Wesley Volek



Kirsty Austin and Wesley Volek send their best regards as a married couple! On April 2nd they celebrated a fairy tale wedding at the wedding eldorado duBoirs in Water-

Two more weddings in the ACAT team!

Wedding bells in Leer

Also Aron Eden said „I do“. On September 2, at high noon he and his wife Nadine entered in the bond of marriage in the closest family circle at the registry office in Leer. ACAT congratulates the newly-married couple warmly and wishes only the best for the future together.

Marry young, and you won't regret it!

Also Ismail Khakimov has got already married. He took his Fatima from Carinthia to St. Pölten. In September they married there in the family circle. We would like to wish the very young couple all the best for their life together!

fall (South Africa). Since then they have been in seventh heaven. We congratulate!

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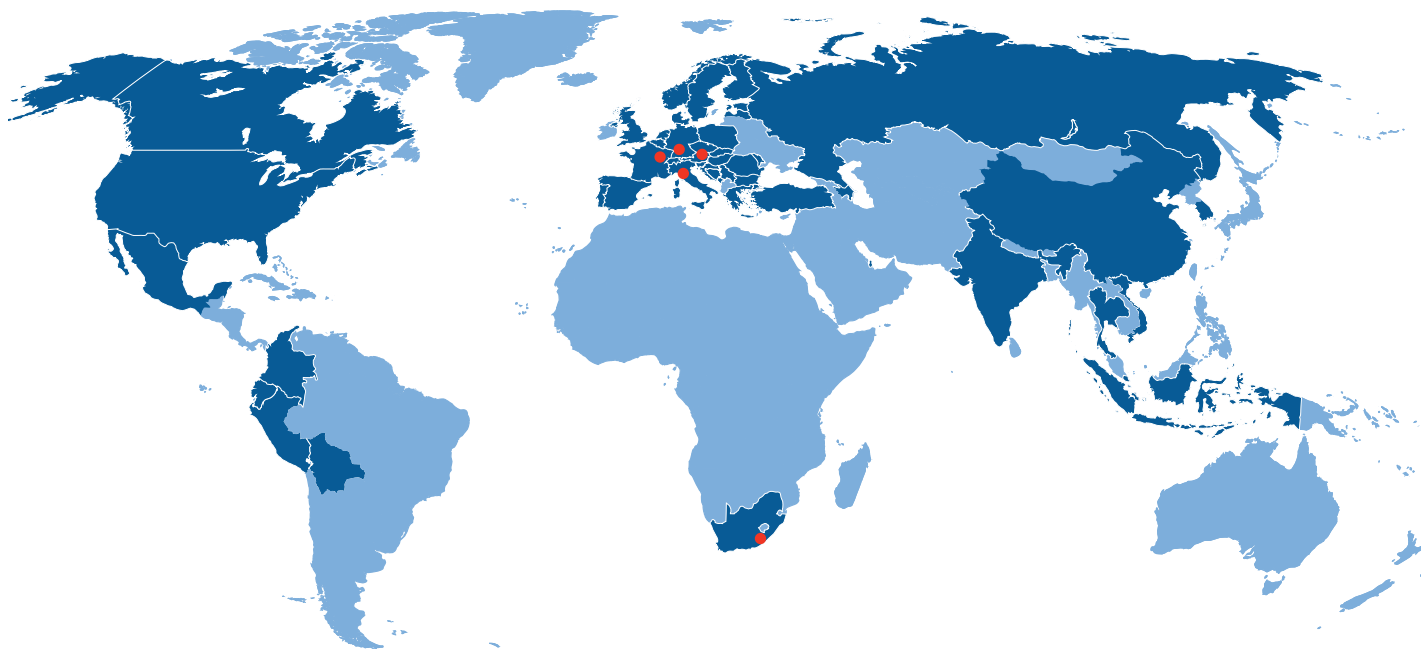
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