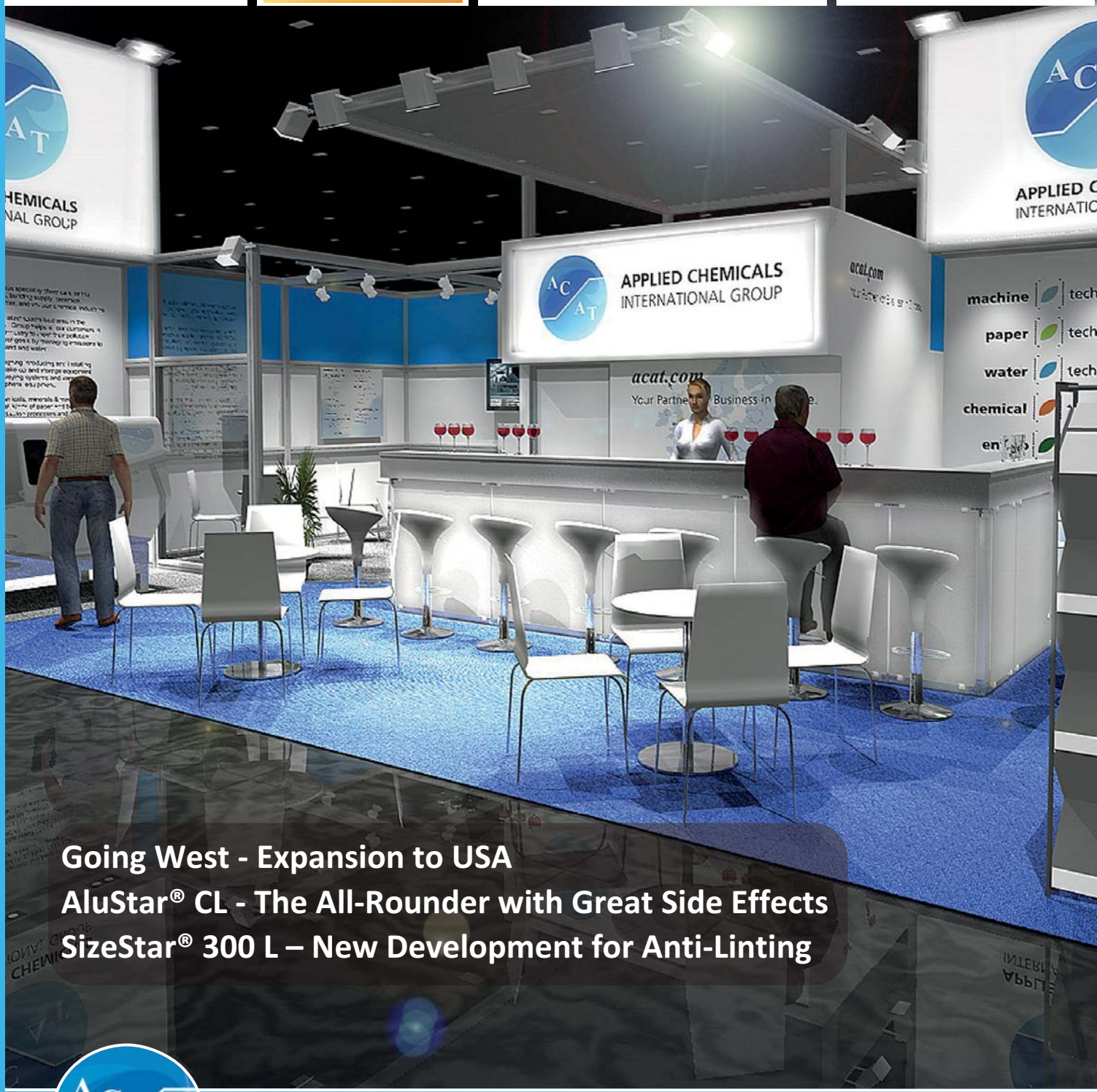
inside acat

Newspaper for customers, friends and employees



Going West - Expansion to USA
AluStar® CL - The All-Rounder with Great Side Effects
SizeStar® 300 L – New Development for Anti-Linting

APPLIED CHEMICALS International Group
Technical Service is our Success

CONTENTS

ZETAG® ULTRA: Solid/liquid separation with flocculants in wastewater treatment

Top upgrade of the wastewater treatment plant Ariolo in Ticino with ACAT-screw press type AS 450

Münzing Chemie: Increasing demand for powder additives in dry mortars and ready-mixed mortar

EVENTS, NEWS

COVERSTORY

TECHNICS

COMPANY NEWS

EDITORIAL

Photo: Nestler-Kenzian

Manfred Zabl

Dear friends of our company,

the 19th issue of our magazine is intended to inform our readers about the large number of events we expect this year. Without doubt IFAT is the world's largest trade fair for environmental concerns. It is the premium European event for new developments and innovations in environmental technology and it will open its doors in Munich on 5 May. The Zellcheming-Expo 2014 takes place in the centre of Germany, in Frankfurt. The exhibition combines expertise and innovation for the paper and board industry and it is the first address for papermakers from all countries. The emerging Asian paper market is reached by the Asian Paper Show. This year it is held in April in Bangkok. The show incorporates an exhibition, conferences, a symposium and local fairs and it provides an ideal platform for information and for intensive exchange with customers and companies in the region.

Despite the wonderful world of modern communication technology, personal contacts are irreplaceable. There is nothing like a personal conversation, where you get to know your counterpart with all your senses! The best 300MBit glass fibre line Internet connection cannot replace it and most likely it will not change for generations, if ever. In the supplier industry we are currently experiencing further consolidation and rationalisations. Usually the consequences are reduction of staff and reduction of personal contacts and service partners and thereby companies often lose the opportunity to get to know the customers personally, to be familiar with them. As a result, advantages over competitors are lost - if they do not pursue the same strategy. Of course, companies gain immediate benefits from cost reductions, which they can pass on to their customers.

It is sometimes forgotten that chemical and technical suppliers cannot be equated with the banking or retail sector, where electronic order forms and Internet banking are sufficient to meet daily needs. Our business needs a great deal of confidence, personal advice and a wide range of services to develop solutions together for the inevitable problems which arise. No matter what others are doing - we will maintain partnership and direct contact with our customers in-line with our motto: "Technical Service is our Success!" And nothing will change this in future!

With this in mind, we are looking forward to your visit at one of the above-mentioned events, which will take place in the coming months, or we will meet soon at your plant to communicate updates on products that we believe you are interested in and to develop common solutions! Maybe, this issue of our magazine can also give you some information and suggestions. I wish you an instructive and enjoyable read.

Manfred Zabl
CEO APPLIED CHEMICALS International Group

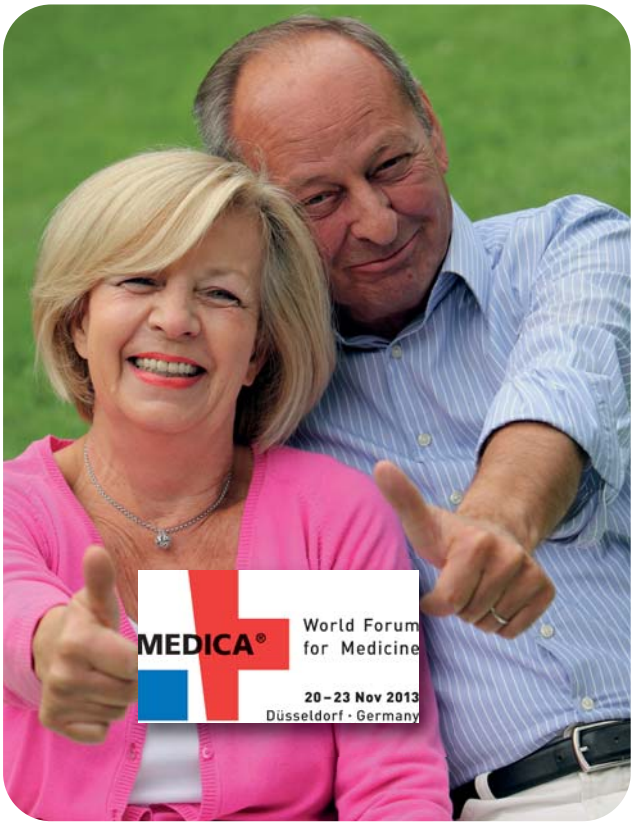
WE WERE THERE!

MEDICA: Challenge and Huge Task

Review of MEDICA 20 to 23 November 2013 in Düsseldorf – ACAT was part of it!

MEDICA in Düsseldorf is the world`s leading medical trade fair. In 2013, more than 4.500 exhibitors from more than 60 countries presented innovations and products in 20 exhibition halls to 130.600 visitors coming from 120 different countries.
MEDICA presented a remarkable portfolio of products, topics and enterprises, from the innovative small firms, medium-sized companies up to global players. In national pavilions, companies from numerous countries presented their products.
In 2012 we exhibited at MEDICA for the first time and in 2013 we again took the opportunity to be part of it. Together with OMI Industries, our partner from Chicago, we exhibited FreshWave®IAQ at the US-pavillon.
We succeeded in placing FreshWave®IAQ on the niche market. Currently the product is tested Europe-wide and positive test results could help us to enter larger markets. We see potential for a positive development in the long term.

Text: Aldo Randisi



Photos: Farina2000/pixelio.de (1), Asian Paper SCS (1), MIBA spol. s.r.o. (1)

THIS WAS AQUAPRO GAZ 2013

This year at AquaProGaz, the main focus of ACAT was on sludge dewatering. Especially for the French speaking part of Switzerland, the trade fair with the thematic priority on drinking water, waste water and natural gas is a highlight.

Interested people get the chance to gather information on new or well-established technologies in this field. A real eye-catcher was the mobile sludge dewatering unit with the ACAT-screw press. The unit was installed in a suitable car with tandem-axle, designed as a plug and play unit. On the external wall of the trailer the customer has only to connect power, sludge, water and filtrate and then sludge dewatering can start without further troubles. The exhibited plant was the ACAT demonstration unit, showing customers on the one hand the simplicity of the system and on the other hand the guaranteed values for degree of dewatering and polymer consumption.
If you are interested in a demonstration of this system please contact Vincenzo Carco by e-mail vincenzo.carco@acat.com.
The huge number of visitors showed us that it was the right decision to present our demonstration equipment at the trade fair.

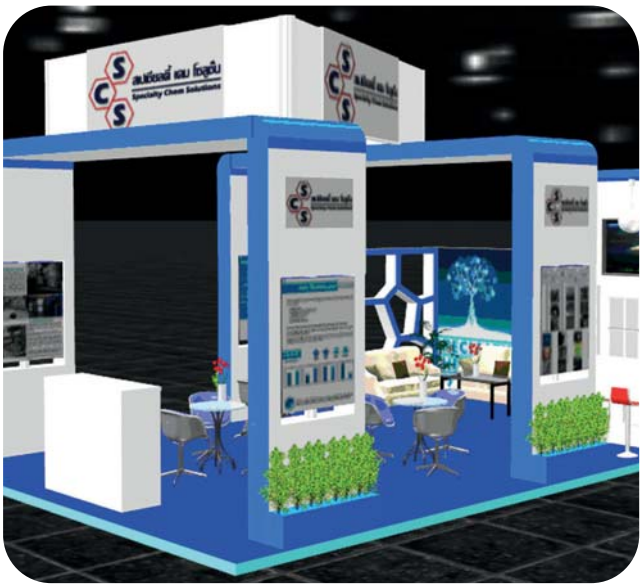
Text: Vincenzo Carco

OFF TO NEW TRADE FAIRS AND EVENTS!

PREVIEW TO ASIAN PAPER 2014

The Biannual Asian Paper Event will take place during the 23rd to 25th April in Bangkok Thailand.
The show consists of a Senior Management Symposium, a New Applied Technology Conference as well as the large Exhibition.
The Event is widely visited by Pulp and Paper Industry personnel from all across Asia and the Middle East.
This year our Thailand working partners SCS Chem will be exhibiting their extensive range of Process Chemicals that they manufacture and sell into the Thai pulp and paper market, as well as ACAT products.
There will be posters displaying the APC Pitch and Stickies Instrument, and 'Our Technology is your Business Opportunity' poster outlining the high customer ROI from BondStar® and RetStar® technologies that SCS and ACAT are already successfully providing to many customers in Thailand.
ACAT personnel will join SCS to help welcome all to come and visit us on the booth.

Text: Howard Johnston

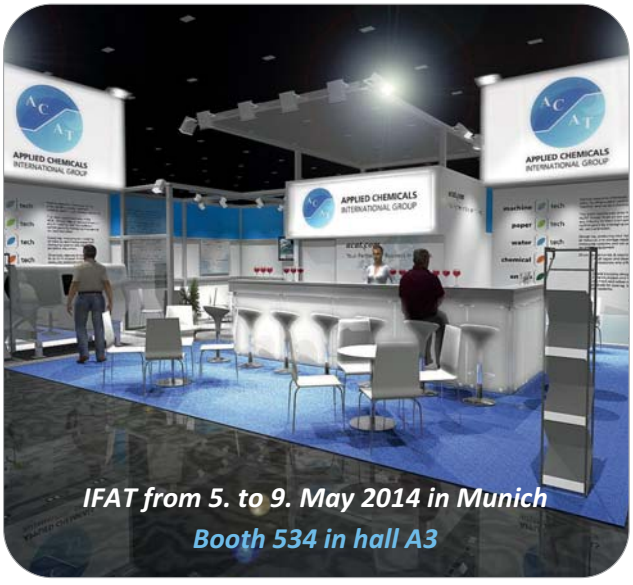


More information about ASIAN PAPER 2014 is available on www.asianpapershow.com

IFAT 2014 IS FULLY BOOKED!

- About 3.000 exhibitors
- 230.000 square metres of exhibition space
- 56 joint stands from 13 countries
- Waiting list for some sectors

IFAT, the world's leading trade fair for innovation and services for water, sewage, waste and raw materials management is held in Munich from 5-9 May 2014.
Compared to 2012, the exhibition space is extended by 15.000 square metres to a total area of 230,000 square meters. With about 3,000 companies from 50 countries a new exhibitor record is expected.
As at last IFAT, this year we will again present the mobile sludge dewatering units – both the small and large version - and the ACAT-screw press AS 0505 S at our both stands in hall A3 and at the outdoor stand nearby.
The traditional table football tournament will take place on Tuesday, May 6, from 6 pm at our booth number 534. Because of the upcoming FIFA World Cup 2014 in Brazil, the players will be cheered with Brazilian music, and the winners will get great prices from the world's most successful footballing nation, Brazil.
We look forward to your visit at our booth nbr. 534 in hall A3 und nbr. 16 outdoor A3-4!



IFAT from 5. to 9. May 2014 in Munich
Booth 534 in hall A3

Text: Susanne Durst

NEW DISTRIBUTORS IN EUROPE:
ISSA in Amsterdam from 6 - 9 May 2014

ISSA Interclean is the world's leading trade fair for cleaning professionals. Every two years it takes place in the "Capital of the Tulips".

The ISSA Interclean in Amsterdam is a must for cleaning professionals.
In 2012 about 20,000 visitors had the opportunity to exchange ideas and experience with 670 exhibitors and to make new contacts.
This year the trade fair organisation expects an even larger number of visitors.
For ACAT the trade fair is the ideal platform for the presentation of FreshWave®IAQ. Two years ago during our first participation we were able to create the interest of many visitors in our odour control products.
As a result new important customers were acquired. In 2014 we want to focus increasingly on well-known larger distribution organisations to achieve faster market penetration. Our partner, OMI Industries from Chicago/USA, will actively support us.

Photo: ISSA (1), APV (1), Zellcheming Expo (1), WEFTEC (1)

We are already looking forward to many interesting contacts and discussions at ISSA Amsterdam this year.

Text: Aldo Randisi

APV - Austrian Paper Conference
4 to 5 June 2014 in Graz

The focus of this year's conference is on „Innovation, Changes and New Technologies". Renowned experts from business, research and politics are expected to discuss special subjects.

This year Mr. Daan Waubert de Puiseau from econovation Company will join our team at the conference. We are very pleased to present his new development on our stand, the ecowirl m, an innovative technology for mixing operations! You can hear the lecture entitled "An innovative method for the efficient, reliable dosing and mixing of additives to the primary circuit of paper machines" by Mr. Daan Waubert de Puiseau (econovation, product developer) and Stefan Schaub (ACAT, paper technologist) on Wednesday, June 4, at the Technik Forum2 (hall 12) from 12.45 to 13.10pm.

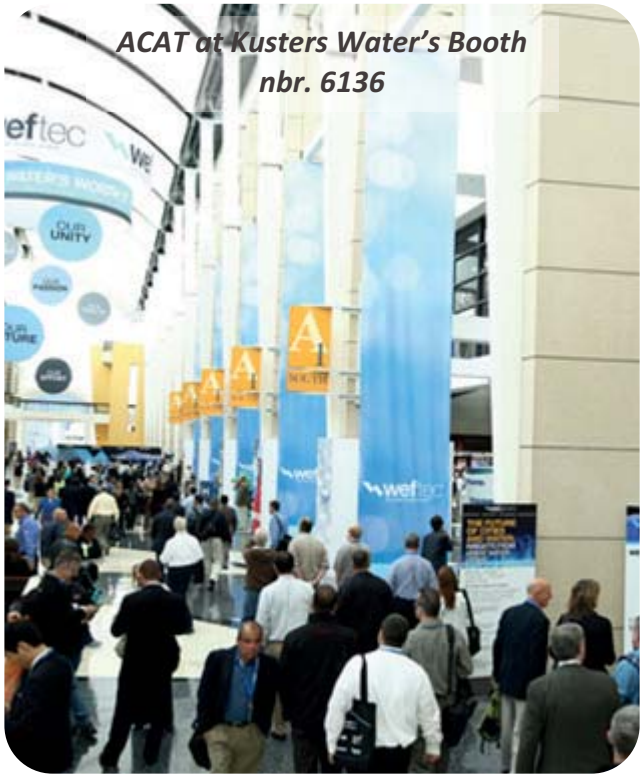
As every year, the Old University will provide the impressing backdrop for the perfect ending of the first conference day.
We look forward to your visit!!

Text: Susanne Durst

WEFTEC: September 27 to October 1 in New Orleans

The WEFTEC (Water Environmental Federation Technical Exhibition and Conference) is the largest trade fair for environment and waste water in North America.

WEFTEC 2014 will be held in New Orleans, Louisiana from September 27 to October 1.
ACAT is pleased to take part in this important exhibition for the second time, together with our U.S. distribution partner Kusters Water, to present the benefits of the ACAT screw press.
Of course, ACAT hope to broaden our relationships with interested suppliers and partners and we will try to get an overview of current American trends on this business. *Text: Per O. Bjöörn*



ACAT at Kusters Water's Booth nbr. 6136

NEW IN FRANKFURT: The „Paper Trade Fair" ZELLCHEMING Expo moved to the Main

For the first time Zellcheming Expo, the leading trade fair for the pulp and paper industry, takes place at the exhibition centre in Frankfurt, hall 11 from June 24 to 26, 2014.

With the move from Wiesbaden to Frankfurt we enter new territory together. We must leave our traditional stand and the familiar surrounding area of Wiesbaden, but we think that the move offers a new chance, as Frankfurt is a highly attractive international location. The decreasing number of visitors in recent years was discouraging. As I have got to know our sector of industry over several years now, I think that first comfortable meeting places for papermakers will soon be established in Frankfurt as well.
I would like to take this opportunity to invite you to visit us at our stand, where qualified experts will present proven products such as retention agents and flocculants and innovations such as dry strength agents and fixing agents. We will be pleased to give you individual advice and support to solve your specific problems. We look forward to your visit in Frankfurt.
Text: Nuri Kerman

RIMINI IN NOVEMBER: Ecomondo Exhibition, the platform for green solution

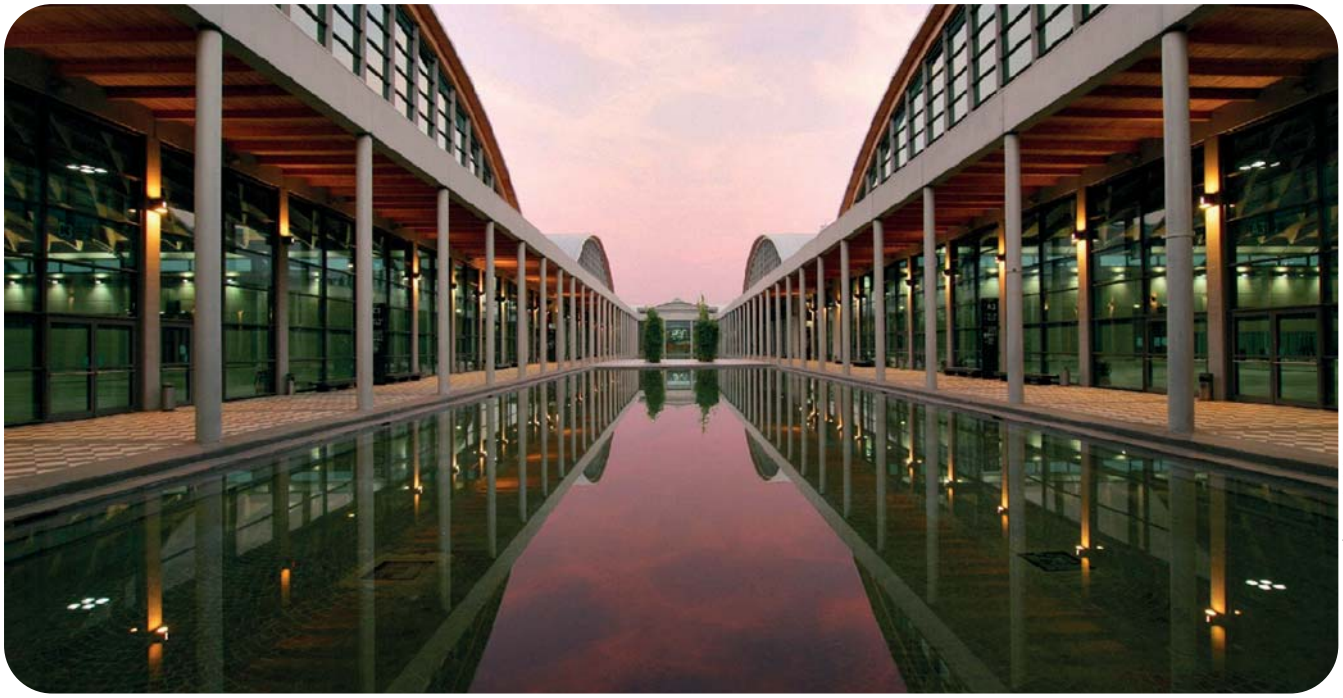


Photo: Rimini Fiera

Ecomondo is the most accredited platform for southern Europe and the Mediterranean basin, for the exploitation and recycling of materials and for the large industry of the future, The Green Economy. It owes its success to a weighted and rewarding balance between sales issues and technical-scientific issues, with considerable space dedicated to innovation in the Green Economy sector.

Areas of particular interest at the 2013 event:

- waste characterization, management, recycling and exploitation,
- monitoring, management and treatment/exploitation of industrial and civil wastewaters (blue gold)
- the biomass chemical industry, dedicated non-food biomass bio-refineries and residues ("Biobased Industry")
- the monitoring and clean-up of contaminated sites, soils and sediments (Reclaim Expo)
- monitoring and treatment of air pollution (Air)
- Smart cities and communities (the sustainable City)
- These areas, already successfully represented at Ecomondo, are those to be supported by funds from the recent national industrial research tenders "Cluster" and "Smart City" and those promoted by the European initiatives (PPPs, JPI, KIC, etc) which direct the contents of Horizon 2020, funding EU industrial research from 2014 to 2020 with about 80 billion euro.

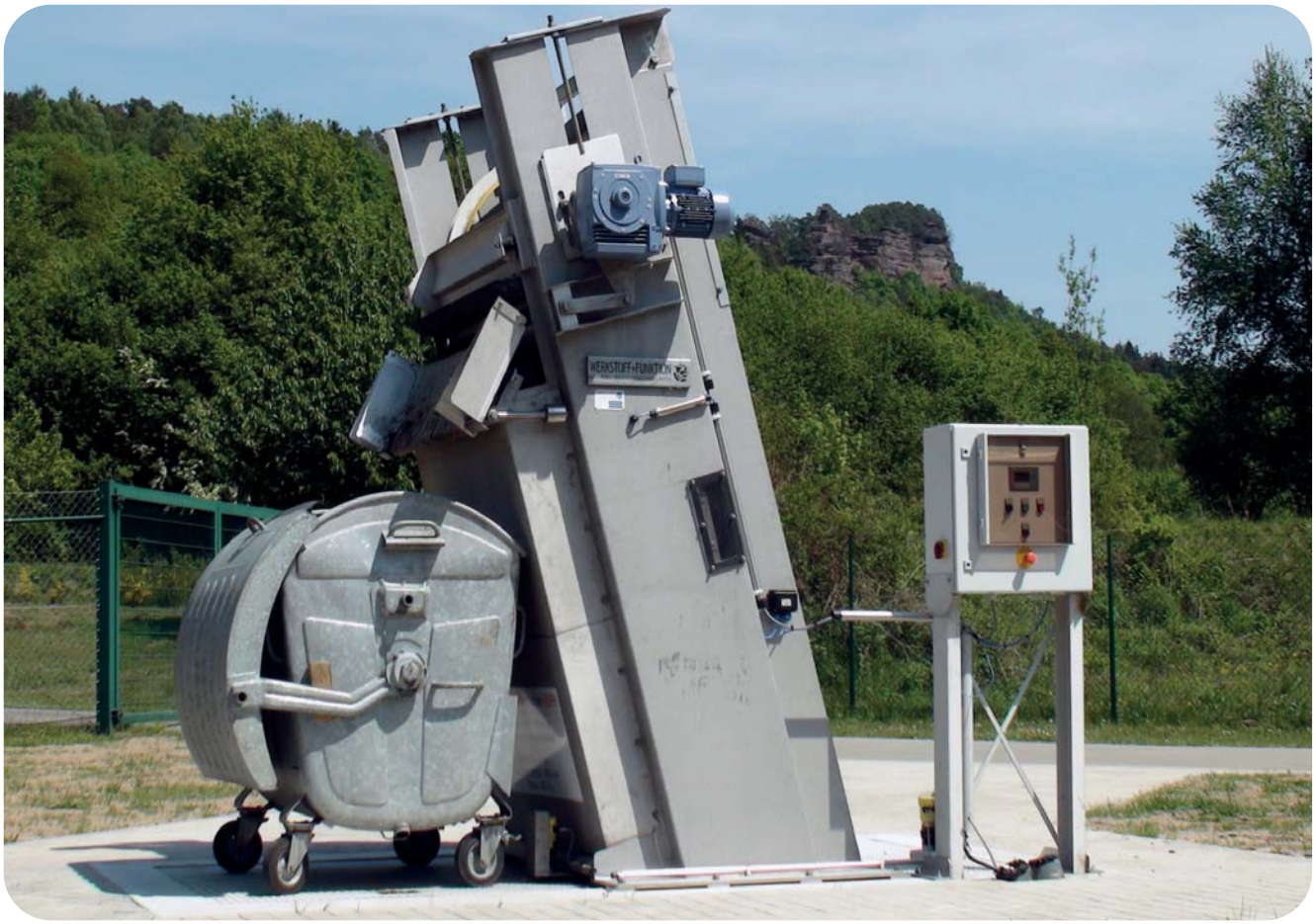
ACAT will attend this exhibition at the monitoring and treatment air pollution event. ACAT is a leading developer of safe and effective industrial odor management solutions for a wide variety of applications. Our Ecosorb® odor eliminator doesn't mask smells, it neutralizes them by breaking down and removing a broad spectrum of organic and inorganic odors.

From landfills to refineries to wastewater treatment facilities, ACAT offers an industrial odor management solution that's safe for you, your process and the environment. Ecosorb® odor eliminator is biodegradable and can be applied through a number of delivery systems, including atomization, vaporization, encapsulation or infusion into end products - making it the natural odor management solution for virtually any situation.

Text: Claudio Boscolo

SCREW PRESS: A new cooperation between W + F Grimmel Wassertechnik and ACAT

For WERKSTOFF + FUNKTION Grimmel Wassertechnik (W+F) sludge dewatering with the ACAT screw press is a perfect complement to the mechanical pre-purification equipment.



For many years WERKSTOFF + FUNKTION Grimmel Wassertechnik has been our partner for mechanical pre-purification. It is a leading company in German speaking countries that can draw on decades of experience in waste water cleaning. Profound knowledge and commitment of employees are behind the innovative ideas in process engineering and construction.

On this basis W+F develops modern solutions for user-friendly, efficient technologies. Numerous patents and special technical implementation emphasise the innovative strength of the company. Examples are the unique developments of the flat-fine screen or the cylindrical grit separator. Both machines set standards in terms of operational stability and user-friendliness.

The technical state in mechanical wastewater treatment requires high loading capacity and performance of all components (for example: the modern counter current fine screen needs no structural by-pass for emergency situations).

In 2013 W+F Grimmel Wassertechnik decided to develop in future sludge treatment in cooperation with ACAT. The sludge dewatering process with a screw press proved to be a perfect addition to the existing machine program for mechanical pre-cleaning. This technology provides operating stability, ease of operation, technical simplicity, good dewatering results and significant energy benefits. Numerous ongoing projects and the arousing great interest in the market show that the joint efforts of W+ F and ACAT are rewarded.

Text: Ronald Poelgeest

ROBAMA:
A New Strategic Partner of ACAT!

With Robama, we have now found a partner, who fulfils our strict selection criteria and who will support us in paper dyes.

In the past we have had repeated contacts with various dye suppliers from around the world. After extensive tests that each potential supplier of ACAT has to undergo, unfortunately all previous projects were rejected, for various different reasons.

With Robama, we have now found a partner, who fulfils our strict selection criteria and who will support us in paper dyes. The first training courses have already been held and the first projects are in progress. We are convinced that with the Robama's products we have expanded our portfolio with an interesting segment. Especially in the field of packaging papers we are nowbetter recognised as a single-source supplier and we are able to expand our market position.

Text: Stefan Schaub

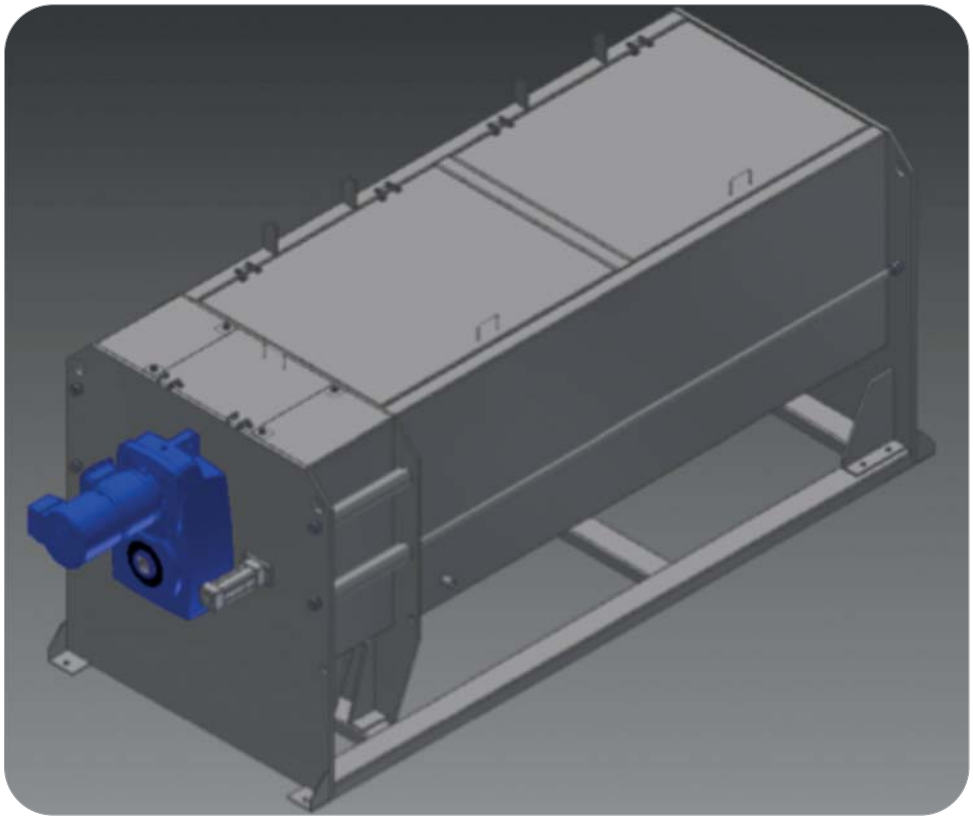
GOING WEST - Expansion to America

Among others, ACAT machine technology focuses on the sludge dewatering of municipal and industrial wastewater treatment plants. In our opinion it is necessary to offer the full range of dewatering technologies. In addition to usual chamber filter presses, centrifuges and other available units it includes new technologies such as screw presses.

AUTHOR: **PER O. BJÖÖRN**

The technology of the screw press continues to develop rapidly and ACAT plays a leading role. Due to the many years of experience in sludge dewatering and to a long-standing relationship with customers, we know exactly the needs of the market and that's half the battle for the future development of our screw press. The result is a market-leading and sophisticated product: the ACAT screw press.

Outside of our home markets we cooperate with technically highly competent and locally recognised distribution partners to provide the ACAT screw press for advanced sludge dewatering worldwide. One example for a successful partnership is the expansion to the United States via our partner Kusters Water. For a number of years ACAT has evaluated the U.S.-market. With Kusters Water we have found an excellent partner for the distribution of ACAT screw press for the USA, as well as for Canada and Mexico (NAFTA countries). Kus-



ters Water is an ideal partner because base requirements such as ISO certification and quality management and the focus on high-quality products and long-term partnerships with customers are consistent with our own. In Autumn 2013 at WEFTEC we presented the ACAT screw press on the U.S. market. The ideal platform for the presentation was the participation of our distribution partner Kusters Water at that exhibition and we have received great interest there. With his own mobile demonstration unit of an ACAT screw press our U.S. partner is able to show interested customers how it operates and they can convince themselves of the advantages of this technology.

ACAT staff provide regular technical assistance and personal training in the United States to ensure optimum support and success in future.

Already in the first months of the U.S. distribution partnership, two large screw presses were delivered to the United States. The project pipeline also promises an exciting future.

The first successes on the U.S. market are the confirmation of good cooperation and they give us hope for the future.

The United States is a large interesting market. Besides the U.S., ACAT strives to find additional local partners in other regions representing the same values as ACAT: Technical Service is our Success!

ZETAG® *ULTRA*: Solid-Liquid Separation With Powder Flocculants

Photo: Spiola

AUTHOR: **ERICH SAILER**

BASF is globally launching a new ultra-high molecular weight cationic powder flocculant range with Zetag® *ULTRA* for solid/liquid separation in industrial and municipal waste water treatment.

Zetag® *ULTRA* has been developed combining BASF's long-standing application expertise in water solutions with its extensive polymer research know-how, focusing on specific customer requirements while considering environmental aspects. Zetag® *ULTRA* complements the existing BASF flocculant range to better serve future equipment trends in the dewatering market.

Because of its effective bridging capabilities, Zetag® *ULTRA* shows advanced dewatering performance. It offers strong floc integrity to withstand high shear forces which makes it especially effective for the use in centrifuge applications as well as for dissolved air flotation.

"Today industrial and municipal water treatment plants are chal-

lenged to achieve maximum performance under increasing cost pressure." says Marcus Fuest, Global Industry Marketing Water Solutions. "Zetag® *ULTRA* has proven its excellent performance in a variety of extensive plant trials worldwide. Our customers report that cake solids of dewatered sludge increased in average by 15%. Other customer cases show a significant dose saving of up to 20%. Furthermore the centrate has an improved capture rate. Zetag® *ULTRA* is the ultimate fit to answer our customers' needs."
The new high performing flocculants allow waste water treatment plants operating more efficiently and effectively. The unique molecular architecture of Zetag® *ULTRA* offers customers a clear cost advantage through operational cost savings. The achieved higher cake solids are environmentally beneficial as less energy is required for transportation, disposal and incineration, which has a positive impact on the carbon footprint of the treatment facility.

AluStar® CL -

The All-rounder with Great "Side Effects"

Alustar® CL is a unique mixture of aluminium chloride, ferric chloride and various other salts. It was mainly used successfully for phosphate precipitation and bulking sludge treatment.

AUTHOR: **ERICH SAILER**

• Control of filamentous bacteria:

Due to the high aluminium content AluStar® CL ensures a lasting control of certain filamentous bacteria. Filamentous bacteria can cause bulking sludge, floating sludge and foam in the final clarification. The result of massive presence of filamentous organisms is the formation of foam in the digester.

The use of AluStar® CL is a specific measure for the selective control of bulking sludge, floating sludge and foam-forming bacteria. Prior microscopic examination of the sludge / foam and the determination of the dominant filamentous bacteria are important.
The following effects can be achieved with proper dosage of AluStar® CL:

- Decrease of the stringiness (downgrading to a lower stringiness category)
- Complete disappearance of certain filamentous bacteria
- Improved settling of activated sludge, reduces SVI to values < 100 ml/g
- Foam reduction in plant and digester
- Stabilization of the COD in the effluent

• Sludge weighting, SV index improvement and flocculation: :

AluStar® CL effects (regardless of the P elimination) the flocculation of suspended waste water ingredients. Polyvalent metal ions cause the coagulation of extremely small particles by the equalisation of surface charges. Finally, particle coagulation leads to flocculation and enables the sedimentation of the particles or accelerates it significantly.
The application of AluStar® CL in simultaneous precipitation provides a number of improvements:

- Low sludge volume index, usually < 100 ml/g
- Accelerated sedimentation, which counteracts sludge overflow and allows higher hydraulic loading in the final clarifier
- Better thickening of excess sludge

The entire plant operation is stabilized by a good sludge weighting.
The sedimented sludge is transported to the digester where the digester gas is desulfurized by AluStar® CL.

• Desulphurization of sludge digester gas

With the excess sludge iron, a component of AluStar®

Photo: Spiola

The use of AluStar® CL is a specific measure for the selective control of bulking sludge, floating sludge and foam-forming bacteria

CL, enters the digester. There hydrogen sulfide reacts with ferrous chloride to ferrous sulfide.

$$H_2S + FeCl_2 \rightarrow FeS\downarrow + 2HCl$$

During combustion in gas engines hydrogen sulphide H_2S causes considerable corrosion problems. In addition, a high H_2S content can lead to the inhibition of microorganisms in the digester. Therefore, one makes use of the strong affinity of iron to sulphur to purify biogas and sewage gas or to desulphurise it. Already in the digester insoluble iron sulphide is produced. It is disposed with sewage sludge.

By the use of iron-containing precipitating agents, such as AluStar® CL, usually no further desulfurization is needed. In recent years, AluStar® CL was increasingly used in sludge dewatering. In combination with ACAT specialty polymers and conventional lime conditioning outstanding results are achieved. Compared to normal iron chloride the drainage capacity could be significantly increased.

- **Sludge Dewatering**

Using AluStar® CL in sludge dewatering the quantity of flocculants can be reduced. AluStar® CL forms a sup-

port frame that increases the shear strength of the flocs. Additionally the charge density (cations) in the sludge mixture is increased and therefore the polymers used are more effective. Partially higher TS concentrations are achieved in the dewatered sludge.

Besides other positive side effects AluStar® CL reduces the formation of MAP / struvite.

- **Magnesium Ammonium Phosphate (MAP, struvite)**
  $Mg\ NH_4\ PO_4 \times 6\ H_2O$

MAP is one of the most sparingly soluble ammonium and magnesium compounds. Here and there in wastewater treatment too high concentrations of ammonium, magnesium and phosphate may occur exceeding the solubility product. As a result coverings made of struvite are formed, which can significantly affect the operation of wastewater treatment plants.

Reducing the concentration (precipitation) of phosphorus in the secondary sludge the formation of salt crystal is significantly reduced. At high pH values the separation of salt is enhanced.

AluStar® CL lowers the pH-value. This inhibits the formation of salt (MAP) and additional the remaining phosphorus load from the filtrate / centrate is reduced.

Result:

Before:

$Mg^{2+} + NH_4^+ + PO_4^{3-} \rightarrow Mg\ NH_4PO_4 \times 6H_2O \downarrow$

Afterwards:

$Mg^{2+} + NH_4^+ + PO_4^{3-} +$ Alustar CL
$\rightarrow FePO_4 \downarrow + AlPO_4 \downarrow Mg^{2+} + NH_4^+ + xCl$

Photo: Dieter Schütz/pixelio.de

By using AluStar® CL in sludge dewatering the quantity of flocculants can be reduced

THE COMMUNITY GRAFENDORF MOBILIZES

From now on in Grafendorf - known as a very hospitable community - sewage sludge is dewatered with a mobile ACAT sludge dewatering system equipped with a screw press.

AUTHORS: **EWALD KERN AND MICHAEL RIEGER**

Grafendorf near Hartberg is situated in the hills of East Styria at the foot of the Masenberg, Austria. Grafendorf is a traditional summer resort of the Southern Wechselgebiet surrounded by wooded hills and meadows.

For the decision-making process, leading up to the purchase of a mobile sludge dewatering unit at WWTP, drainage systems equipped with screw presses were provided from various suppliers for testing. The trials were supervised and evaluated by the operating team of the sewage treatment plant and the planning office Umwelt & Bau DI Gruber.

And the welcome result was: In September 2013 ACAT received the order for a screw press type AS 450 installed on a two-axle trailer.

The focus of a dewatering system for small sewage treatment plants is on continuous dewatering operation. Many mobile drainage systems offered on subcontract do not offered continuous operation, which in turn leads to sporadic incoming filtrate giving an intermittent loading of the wastewater treatment plant.

Of great importance for small treatment plants are also low voltage connections as well as low control and maintenance effort.

Sustainable cooperation between the community Grafendorf and ACAT was decided and a periodic Use Agreement was signed.
Of course, the provided system complies with our most advanced design standard and will be exhibited in Munich at IFAT in the outdoor area. Our application engineers will be pleased to carry out demonstrations and test pressings.

Technical Data:

- Thin sludge feed pump for a throughput capacity from 0,4 bis 5 m^3/h
- Online polymer preparation for liquid concentrates (Optional: supply of an external powder preparation system)
- ACAT screw press: AS 450 for a throughput capacity from 0.4 to 5 m^3/h including upstream polymer / liquid sludge mixing reactor
- (divided) spiral conveyor for discharging the dewatered sludge to a drop height up to 2.0 m UK
- Control by PLC Siemens S7; operation via touch panel

TESSIN, WE ARE COMING!

Now the sewage treatment plant Airolo has modern equipment and comprehensive ACAT know-how with the ACAT screw press type AS 450. It has a throughput capacity of up to 100 kg TS / h and an ACAT "Total Package" consisting of polymer preparation, pump technology for thin sludge, conveyor technology for thick sludge, turbidity measurement, piping and control.

AUTHORS: **VINCENZO CARCO AND RONALD POELGEEST**

Airolo is a community situated at the end of the Valle Levantine. Due to its location at the southern foot of the Gotthardpass, for most people it is symbolically seen as the entrance to the Ticino. With approximately 1,200 residents it has already left behind “village” status with Airolo now considered to be the largest skiing destination in Ticino, but even in summer there are numerous possibilities to enjoy nature. From an economic point of view a major role play the construction industry, metal processing and cheese making.

The wastewater treatment plant Airolo has existed since 1969. Currently it has a capacity of approximately 5,000pe. It is operated with the activated sludge process with simultaneous aerobic sludge stabilization.

In 2012, the decision was taken to replace the existing sludge dewatering with up to date technology. Reasons for this decision were the drainage results, which did not corresponded to current capabilities, and the disposal costs, which have a major impact on the total

operating costs of the waste water treatment plant. The technical office TBF + Partner AG in 6982-Agno was commissioned with a feasibility study.

It became evident in the course of the study that the screw press was the most appropriate equipment for sludge dewatering. Due to low speed and simple operation this technology is also ideal for small plants which are operated discontinuously. The ACAT screw press is characterised by excellent drainage results and nearly silent operation.

To obtain results in terms of the degree of dehydration, polymer consumption and filtrate quality, ACAT was invited to carry out dewatering test runs. Based on the results a calculation of profitability was carried out, which confirmed the decision to buy a screw press. ACAT participated in a tender and as the best bidder it received the order for the entire sludge dewatering system.

The installed screw press Type AS 450 is designed for a throughput of up to 100 kg TS / h. The scope of delivery package also included polymer treatment, pumping equipment for thin sludge, conveyor system for thick sludge, sludge measurement, piping and control. At start-up the guaranteed values were achieved before optimization. The sludge dewatering system is designed for unattended 24-hour operation.

We look forward to further projects in Ticino. During the period of project implementation, after work we often took the opportunity to discover the natural beauty of the region - even if the snow sometimes upset our plans.

MASSIVE INVESTMENT OF RHV STEYR

For the Modernization of Wastewater Treatment

In 2013, ACAT was awarded the contract for the new sludge dewatering system of the municipal wastewater treatment plant.

AUTHOR: **EWALD KERN**

The "Reinhalteverband Steyr und Umgebung" and its eleven member communities decided to invest in advanced technologies. The replacement of the process control system is now complete. The modernization of the 72 pumping stations of all member municipalities is in the implementation phase.

Currently a new sludge dewatering concept is implemented at the central wastewater treatment plant, designed for a capacity of 210 000 pe. In the first extension it will have a capacity of 140 000 pe. The digested sewage sludge is no longer pumped to landfill about 1, 5 km away, but it is dewatered in the newly constructed pressing building situated at the treatment plant. After 25 years of reliable service, the two existing chamber filter presses are out of date.

For the decision making on the future dewatering technology including tendering procedures the renowned design office

Dr. Lengyel ZT GmbH was commissioned, which gave top priority to it. After extensive testing of drainage systems from various reputable providers, the tender by restricted procedure started in the late summer of 2013.
The requirements referred to the technical specification of a system equipped with two high-performance centrifuges, to an expected minimum dewatering capacity and to binding information for ongoing service and maintenance costs.
In the course of the renewal of the treatment plant the sludge conditioning with lime/$FeCL_3$ was converted to sludge treatment with polymers due to the new possibilities of sludge utilization. The chemical and power consumption costs had to be included in the offer.

The offer of ACAT with two ANDRITZ high performance centrifuges type 4 DL was the best. The order was placed after an on-site demonstration, proving that the dewatering capacity of our system is equivalent to the capacity of identically designed mobile dewatering systems.
Success in major competitions is always a great pleasure and it confirms that we are right with our neutral position between various dewatering technologies. After a short and intensive time of installation the plant will be commissioned shortly. We look forward to sustainable good cooperation with the team of DI. Anita Schürrer-Wizani.

FIRST-CLASS CLASS WASTE WATER TREATMENT SYSTEM

For the Premium Factory for Pet Food

The Styrian company, Carat, produces top class pet food for cats and dogs. The sustainably operating wastewater plant at the production site in Gschaid Birkfeld is also state of the art. This modern facility was entirely provided by ACAT.

AUTHOR: **CHRISTIAN KOZANDA**

In autumn of 2013 the company Carat Tiernahrungsges.mbH headquartered in Gschaid Birkfeld in Styria, placed an order with ACAT for the supply and installation of the complete wastewater treatment plant for the work in Birkfeld. Carat Tiernahrung (member of the Petfood Group) is a manufacturer of pet food, packed in aluminium trays and sausages, for both cats and dogs.

In Gschaid near Birkfeld the high-quality Carat products are produced with fresh Styrian raw materials and sold in more than 20 European countries and in the Far East. Until recently, the waste water obtained from pet food production was discharged via a simple grease trap, directly to the municipal wastewater treatment plant Birkfeld, however, the high fat and organic content caused significant operational problems.

At the beginning of the new wastewater treatment plant there is the wastewater collection pumping station, which is designed for a waste water quantity of 2 to 12 m^3/hour. From the pumping station the waste water is conducted via a flow meter to an above-ground positioned rotary screen with a gap width of 0.5 mm, to remove coarse impurities. With an eccentric screw pump equipped

with a stuffing screw, the screenings with more than 0.5 mm are pressed in a disposal container standing in an adjacent cooled room.

By adding PAC the mechanically pre-treated wastewater is fed into a tube flocculator, where the pre-prepared polymer is added. Via free gradient, the wastewater flows into the flotation. At the entrance of the flotation the recycle stream (internal circuit saturated with compressed air) is added. The floating material is removed with a plastic scraper from the surface of the flotation and conveyed into the storage tank nearby. The settled sludge at the bottom is discontinuously removed with a pneumatic slide and it is also added to the storage tank. The treated wastewater leaves the flotation via the pure water outlet for the municipal sewage treatment plant.

While continuously stirring, the contents of the storage tank are removed with a screw pump and passed the flowmeter. Then the pH-value is measured and the calculated quantities of caustic soda and polymer are added before the sludge enters the screw press.

The installed screw press AS 0250 with a maximum throughput of 25 kg DS/h dewaters flotation and bottom sludge and throws the remaining sludge into a spiral conveyor which conveys the dewatered sludge to the disposal container for the screenings standing in a cooled room. Depending on condition the effluent filtrate, it is feed back to the wastewater collection pumping station or it is fed via the pure water outlet to the municipal sewage treatment plant.

The measurement and control technology, the control system and the complete piping system was also supplied by ACAT. Tendering and construction management was carried out by TB Dormann, Ing Dormann, Graz.

ACAT PRESENTS: Our New Partner Robama

Robama is a leading manufacturing Company producing dyestuffs, optical brighteners and auxiliaries for the paper, textile and leather industries.

AUTHOR AND PHOTOS: **ROBAMA COMPANY**

PHILOSOPHY:

- The Company's main goal has always been to supply customized technological solutions to our customers.
- We have extensive, in-depth experience and a highly qualified technical team providing a fast and efficient service.
- Research, quality and environment are our main concerns and allow us to offer a wide range of products suitable to any current requirements from our markets.

HISTORY:

ROBAMA was founded in 1925 by the three Spanish families: Rovira, Bachs and Macià. In 1994 was taken over by the multinational German Group TUMPLER

INTERNATIONAL which operates in over 40 countries around the world.

STAFF:

Our Company is formed by a group of 63 people, highly qualified in every field of our operation and successfully adapted itself to the needs of a highly competitive market.

NETWORKING:

Our headquarters and factory (35.000 m^2) are located in Palafolls (Barcelona). We have a subsidiary in México and 17 distributors and agents around the world.

PRODUCTS PAPER BUSINESS UNIT:

OPTICAL BRIGHTENERS:

ROBAMA manufactures disulphonic, tetrasulphonic and hexasulphonic ranges, which are used for stock, size-press and coating applications.

DYESTUFFS:

A wide extended range of direct (TRUPOCOR) and basic (TRUPOBASE) dyes that meets with the highest expectations, dyeing different types of paper, in accordance with technical and environmental requirements. In Packaging, we offer a wide extended range of over 150 brown liquid dyes which covers most demands of the market. We also develop new colors to meet with the customer's requirements. ROBAMA assists the customer with technical advice during the development and start-up phases of a new dyestuff.

DE-LINTING WITH SIZESTAR® 300 L

SizeStar® products are a range of innovative, multi-functional chemicals developed to improve printability through a number of different mechanisms – improving internal and surface bond strength to reduce fibre lift and controlling hydrophobicity to increase resistance to penetration.

AUTHOR: **ARTHUR AUSTIN**

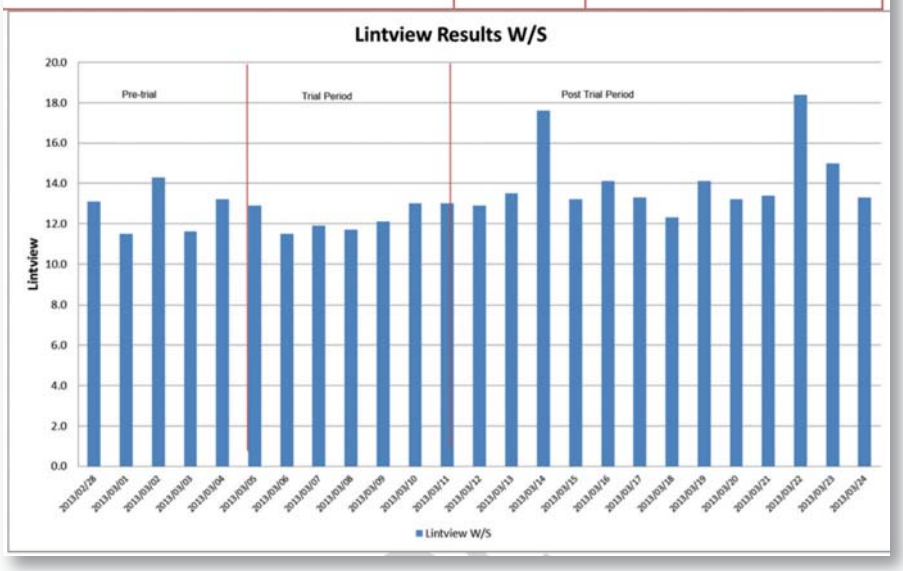
It is well known that a high linting and dusting tendency of newsprint will almost certainly cause a higher frequency of production stops in offset printing.
Such stops are connected with production losses and high costs for blanket cleaning.
Linting and dusting are terms used to define the tendency of a paper surface to shed loose and weakly bonded particles and accumulate these on the blanket during offset printing.
Dust is filler or other fines materials, which are not firmly attached to the paper surface. Such materials are easily removed from the paper surface during prining and accumulate on the printing blanket especially in the first first printing unit. The result is a deterioration of the print quality to the point where the press must be stopped and cleaned.
Fibres are removed from the surface of the paper when the exter-

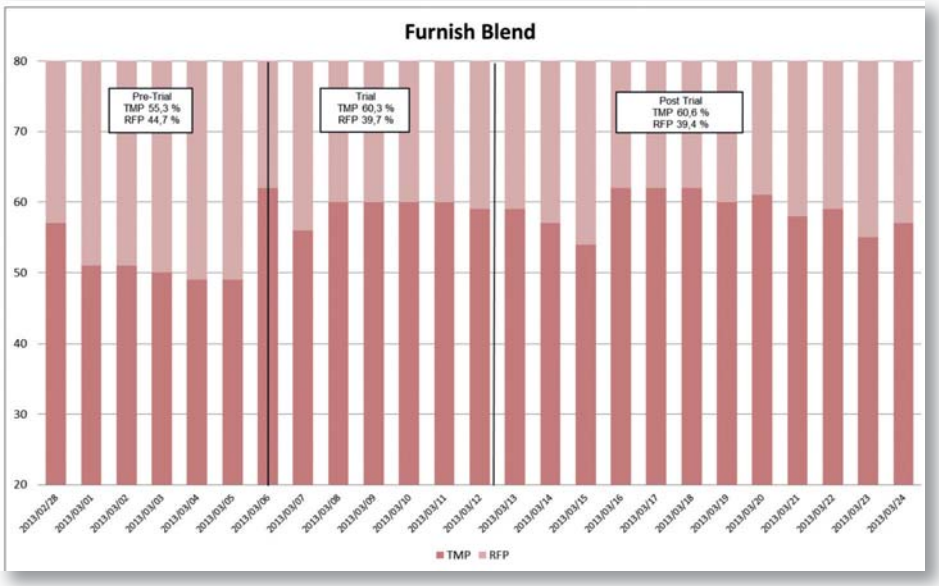
Photo: Spiola

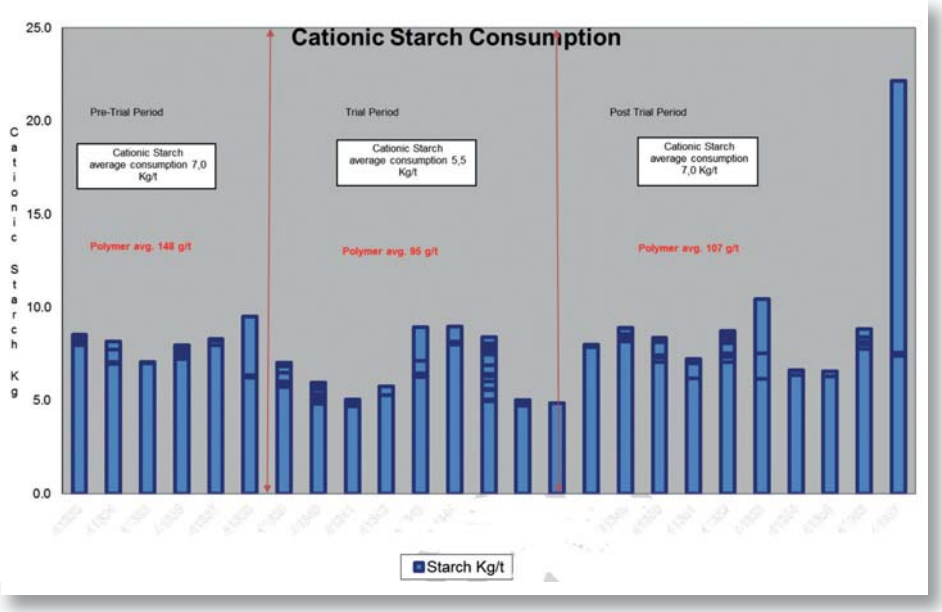
TRIAL RESULTS: SUMMARY

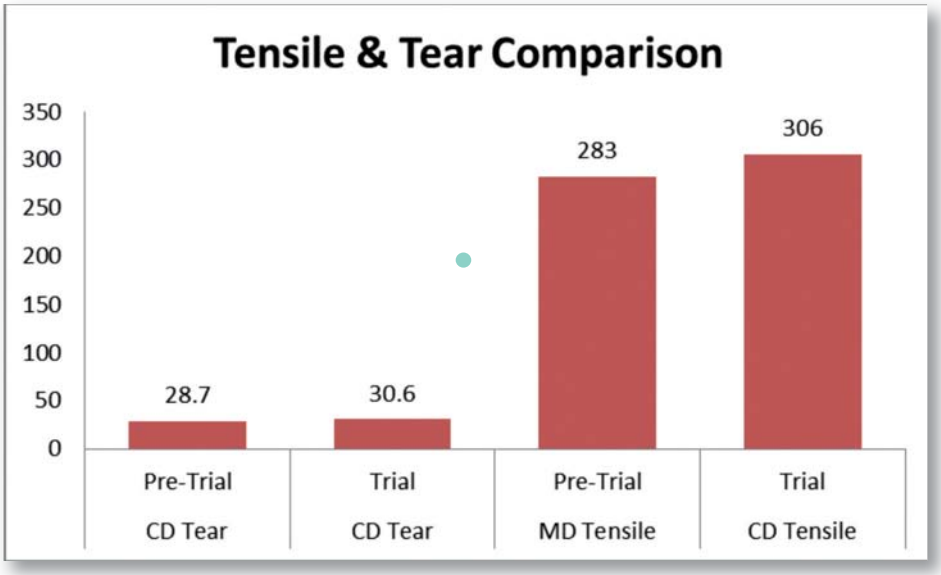
	Pre-Trial	Trial	Post Trial
Modified Cationic Starch (Kg/t)	**7,0**	**5,5**	7,0
TMP (%)	**55,3**	**60,3**	60,6
RFP (%)	**44,7**	**39,7**	39,4
Lint Chemical (Kg/t)	**3,5**	**3,3**	3,4
Polymer g/ton	147,8	95,0	107,4

2 Confidential Information









nal forces exceed the forces holding the fibres together.
This programme deals with the area of internal treatments of thermomechanical pulp (TMP) and recycled fibre containing paper grades such as newsprint. The objective of such treatments was to reinforce the surface strength of the paper in order to decrease the linting and dusting of the paper during printing.

SizeStar® 300 L

SizeStar® 300 L is a semisynthetic polymeric sizing agent, which improves internal sizing and deceases dusting. It gives good control of sheet hydrophobicity and subsequent improvement in heat set offset printing performance. SizeStar® 300 L is applied as an internal sizing agent in newsprint to impart resistance to the penetration of water and fatty liquids in the substrate. SizeStar® 300 L is added to thickstock at a point of high shear for optimum distribution in the stock. Recommended dilution before dosage is 1:10.
The objective was to determine the overall positive impact on linting on Newsprint with the use of SizeStar® 300 L.
SizeStar® 300 L was added to the suction of the machine chest.

SUMMARY:

- An overall reduction in lint chemical was achieved
- A significant overall reduction in starch and polymer was achieved.
- A reduction in the lint view numbers was achieved
- An improvement in sheet properties in terms of Tear and Tensile were observed even with an increase in sheet ash of 0,5% during the trial period.

POWDER ADDITIVES FOR DRY MIX MORTARS WITH RISING DEMANDS

The requirements for mineral based mortars have been steadily increasing in the last decades. Without additives it is hardly possible to cope with these technical challenges. The content of additives in dry mixes normally ranges between 0.1 and 10%. Nevertheless these additives do have a crucial influence on the properties of the mortar. There are several kinds of additives used in dry mix mortars, e.g. air-entraining agents, accelerators, retarders,superplasticizersand rheology modifiers. In this paper three other product groups are discussed more in detail: shrinkage reducing agents, powder defoamers and powder dispersants.

AUTHOR: **DR. OLIVER KINDERMANN**
PHOTOS: **MÜNZING CHEMIE GMBH**

SHRINKAGE REDUCING AGENTS

Excessive shrinkage of cement and the resulting crack formation is one of the most severe problems in the field of cementbased construction materials. The cracks do have negative influence on several properties ofthe applied material, such as visual appearance, usability and durability.

Theory of Shrinkage

Shrinkage is defined as the load independent volume reduction during the drying process of hardened cement paste. This effect is caused by a reduction of the moisture content of the hardened cement paste. There are four different types of shrinkage, depending on the time and reason of appearance[1].

The early shrinkage (plastic shrinkage, capillary shrinkage) takes place in the plastic phase from the beginning of the hydration until the start of the solidification process. It results from capillary forces arising from the withdrawal of water from the fresh mortar. The reason for this is e.g. evaporation of water from the mortar or water absorption of the aggregates. Depending on the formulation the early shrinkage varies in value but the resulting cracks are quite large. The early shrinkage is the only type of shrinkage that can be reduced by timely curing or decelerated hydration. A reduction can be achieved by covering the fresh mortar with plastic foil, spray with water,curing additivesor paraffinbased dispersions.

The chemical or autogenous shrinkage takes place in the first days of the hardening process. It is based on the fact that the volume of the cement gel(hydrate phase) is smaller than the combined volume of mixing water and cement. In the case of complete hydration the volume of the hardened cement paste (water/ cement ratio = 0.4) is about 92% of the volume of the hydrate phase. In the hydration process the amount of free flowing water is reduced and the cement is using water from the capillary pores. This leads to self-desiccation of the pores with the chemical fixation of water in the cement gel. For this reasons the process of au togenous shrinkage depends on the w/c value. Especially low w/c values promote autogenous shrinkage.

Drying shrinkage is to be understood as the loss of free, chemically uncombined water from the hardened cement paste. The hardened cement paste yields

Table1. Guide formulation for a cement based self-leveling compound.

Component	Function	Weight %
Silica sand (0.1-0.5 mm)	Filler	41.24
Portland cement (42.5)	Binder	35.00
Limestone (0.05 mm)	Fine filler	10.00
High alumina cement	Binder	6.00
Anhydrite	Binder / shrinkage compensation	4.00
Redispersible polymer powder	Flexibility / adhesion	3.00
Plasticizer		0.40
Defoamer	Air and foam control	0.10
Na-citrate / Na-tartrate	Retarder	0.10
Li-carbonate	Accelerator	0.10
Celluloseether	Rheology	0.06

Guide formulation for a cement based self-leveling compound

Figure 1: Length determination of the specimen with an electronic dial gauge

water until it is balanced to the ambient moisture. This process is reversible and diffusion controlled and for this reason very slow. It depends on the ambient moisture, the composition and the dimension of the surface. Like the autogenous shrinkage the mechanism of drying shrinkage is based on the fact that water is dispensed from the capillary pores. In the case of autogenous shrinkage this process is caused by a physicochemical process (hydration) and not by a simple evaporation to the ambience.

Anotherslow shrinkage process is the so-called carbonation shrinkage. This irreversible process is caused by a chemical reaction between the ambient atmosphere (carbon dioxide) and the calcium hydroxide of the hardened cement paste. In this reaction calcium carbonate and water is formed. The water is dispensed from the hardened cement paste to balance to the ambient moisture. The carbonation shrinkage is a very slow process that lasts from months to decades and the resulting shrinkage effect is quite small.

Composition and Mechanism of Action

To understand the mechanism of action of shrinkage reducing agents it makes sense to take a closer look on the mechanism of cement hydration and hardening. The literature discusses several models for this process. In the context of this article it is useful to focus on one model that is feasible to explain the process of shrinkage reduction.

The classical assumption is that cement and water form a network of colloidal hydration products that is called cement paste or gel[2]. This paste mainly consists of calcium silicate hydrates, where water is bound in different modes. On one hand as chemically bound water of crystallisation in the calcium silicate hydrates, and on the other hand adsorbed to the gel particles or finally as free flowing capillary water. In the course of the hydration process the distance between the gel particles is getting smaller and the layers of adsorbed water are not longer developed properly and water condenses in these areas. This so called capillary pore water creates pressure onto the gel particles. This pressure deforms the gel particle and the pore structure is enlarged. In the end this process is the reason that leads to shrinkage of the cement paste in the ongoing desiccation.

There are several options to reduce shrinkage in the hardened cement paste. This can for example be achieved by a volume expansion in the early phase of the hydration by adding sulphate (gypsum)[3, 4] or formation of hydrogen cavities (addition of aluminium powder). As mentioned earlier the evaporation of water from the fresh mortar can be reduced by covering with plastic foil, sprinkling with water or paraffin-based dispersions. Especially in the field of dry mix mortars with high quality demands powder shrinkage reducing agents are used often, e.g. in systems with large surfaces such as self-leveling compounds, anchoring mortars and also repair mortars.

Shrinkage reducing agents contain surface active components to reduce the surface tension of water in capillary pores. Experience has shown that a lot of non-ionic surfactants with distinct hydrophobic character are suitable for this application. But most of the conventional used substances have a big drawback. They are not VOC-free. Because of a constantly growing demand of the markets, low emission systems will become more important (e.g. EMICODE). For this reason modern shrinkage reducing agents are formulated

Figure 2:
Shrinkage reduction in a self-leveling compound by using a shrinkage reducing agent (SRA)

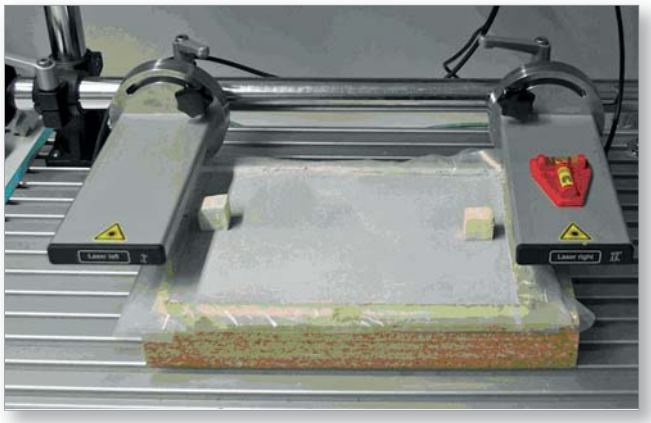


Figure 3: Monitoring of early shrinkage using laser distance measurement

VOC-free to meet these requirements. For easy handling the active ingredients are applied onto specific carriers with high adsorption and fast desorption capacity.
Different mechanisms of action are discussed for shrinkage reducing agents. On one hand hardly soluble calcium hydroxide, which is generated by hydration of the cement, is complexed by the active ingredients of the shrinkage reducing agent and kept in solution. Therefore the hydration process is decelerated. On the other hand because of their surface active properties the ingredients are reducing the water loss from the capillary pores which leads to a decreased capillary tensile stress. These processes lead to larger distances between the cement paste particles and as a result the autogenous and drying shrinkage is reduced[5].

Experimental and Results

To show the mode of action of shrinkage reducing agents a guide formulation for a self-leveling compound is used (see Table 1). The mixing is done by using a Hobart mixer with a short mixing time of 1-2 minutes to simulate the processing at the construction site. The shrinkage is measured using DIN 52450. To do so three standardised specimens are produced in a special casting mould. After 48 hours the specimens are removed from the mould und the length is measured (see Figure 1). The specimens are stored for three months under standardised conditions (23°C an 50% rel. air humidity) and their length is determined in periodical intervals. The value of shrinkage is given in millimeters per meter (mm/m) in relation to the reference value. Early shrinkage can not be observed with this method because the reference value is measured after drying of the specimen. As shown in Figure 2 shrinkage is reduced by over 20% after 2 months. The early shrinkage can be detected by using laser distance measurement. The self-leveling compound is applied to a mould build from plastic foil and window sealing tape. The base is a leveledglass plate. Two polystyrenebased reflectors are positioned on the self-leveling compound and adjusted perpendicular to the laser beam. The change in length during the hardening process is recorded. At the end of the test the final length is measured using a precision sliding calliper and calculated back to the starting distance (see Figure 3). The length reduction is calculated in mm/m. The result of the experiment is shown in Figure 4. Straight after the application the self-leveling compound expands excessively. This effect changes into a massive shrinkage after 4-5 hours. By using a shrinkage reducing agent both effects are reduced significantly.

Powder Defoamer

Powder defoamers are used in a lot of dry mix mortar formulations. These are for example systems based on cement, gypsum, limestone and redispersible polymer powders (leveling compounds, screeds, tile adhesives, joint fillers, powder paints, plasters, repair mortars).

Function and Composition

Powder defoamers are used to reduce and control the air content in wet mortars (see Figure 5). In general this leads to an increased stability of the mortar. Not in every case low air content is preferred. Tile adhesives are formulated with higher air content to achieve a better workability and accurate adjustment of tiles. Also in lightweight screeds higher air content is important to save weight. Powder defoamers consist of a liq-

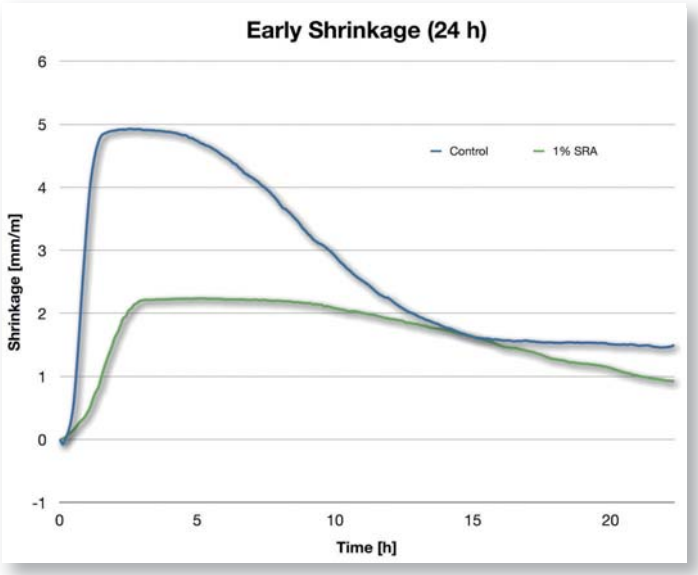


Figure 4: Reduction of early shrinkage in a self-leveling compound

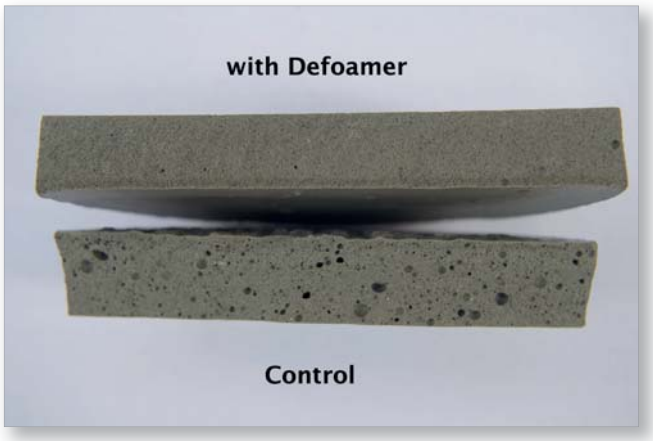


Figure 5: Reduction of air content with a powder defoamer

uid phase which is applied on solid carriers with high-adsorption and fast desorption capabilities. Powder defoamers should provide free-flowing properties and a low tendency to form lumps during storage. The liquid phase of the defoamer consists of compounds with influence on the surface tension of the wet mortar, e.g. hydrocarbons, polyglycols or polyethersiloxanes. The wetting properties of the liquid components are crucial to achieve a homogeneous and bubble-free surface of the mortar. More hydrophobic formulations provide more defoamingeffectivity, but tend to generate surface defects like stains and pinholes (Figure 6). Sometimes interactions between defoamers and plasticizers could be observed which also lead to an inhomogeneous visual appearance. Therefore it requires a skilled selection of the defoamer composition for a given dry mix mortar. Often intensive empiric defoamer screenings are needed to achieve the best compromise betweendefoaming power and visual appearance of the applied material.

Experimental and Results

To illustrate the effect of powder defoamers a guide formulation for a self-leveling compound, containing 0.3% defoamer is blended in a Scandex mixer. The compound is then mixed with water by using a kneading machine for 30 seconds. As mentioned earlier short mixing times and low shear rates simulate the processing at the construction site. To check the influence of the defoamer on the properties of the self-leveling compound different parameters are measured. The flow rate is obtained with a Hägermann table and the wet density by using a pycnometer. The dry density is measured by producing a specimen that is coated with a protective lacquer after drying. The density of the specimen is obtained by weighing in water and air. The optical appearance is judged with the help of a petri dish casting. The results are shown in Table 2. In this case defoamer 3 shows the best results.

Table2.Defoaming properties in a self-leveling compound.

			Without defoamer	Defoamer 1	Defoamer 2	Defoamer 3
Wet density[g/cm^3]			1.863	1.915	**1.975**	**1.982**
Dry densitiy[g/cm^3]			1.645	1.716	**1.785**	**1.786**
Flow rate [cm]			24.5	25.5	25.5	**26.0**
Specimen	Appearance		Grey, no spots	**Grey, few spots**	Grey, some spots	**Grey, few spots**
	Air	Surface	1	6	2	**8**
		Inside	1	1	**9**	**9**
		Bottom	1	1	6	**8**

Rating: 10 = best, 1 = worst

Table 2: Defoaming properties in a self-leveling compound

Powder Dispersants

Powder dispersants can be used to accelerate and improve wetting of hydrophobic components in mineral mortars during mixing with water. These hydrophobic components can be for example fibres, pigments or silica sand. For this reason powder dispersants are mainly used in coloured joint fillers, fibre-reinforced mortars and machine mixed mortars.
Powder dispersants increase colour strength in pigmented systems, reduce floating of pigments to the surface and attain a homogeneous surface (see Figure 7). The wetting of reinforcement-fibersis improved and floating to the surface can be suppressed. This leads to a higher stability of the mortar. In machine mixed mortars the mixing time is reduced and therefore higher delivery rates can be achieved. In some cases combining powder defoamers and dispersants generate syner-

Figure 6: Optical impairment due to wrong defoamer selection

Table 3.Physical properties of the analyzed joint filler.

	Density [g/cm³]	Colour strength		L-value
		absolute	[%]	
W/o dispersant	1.778	10.32	100	40.59
Dispersant 1	1.808	13.32	129.1	36.95
Dispersant 2	1.759	15.03	146.6	35.18
Dispersant 3	1.795	7.16	69.4	46.11

Table 3:
Physical properties of the analyzed joint filler

getic effects that result in more smooth and homogeneous surfaces (see also Figure 7).
The surfactant molecules are wetting the surface of fibers, pigments and aggregates. One can distinguish two different mechanisms of action: electrostatic and steric stabilization. In the case of electrostatic stabilization the surface of the particle is covered with ionic additives. If all particles are charged identical, electrostatic repulsion takes place. If the repulsive forces are stronger than the opposite attractive forces, reagglomeration of the particles is prevented. In the case of steric stabilization high-molecular polymers stick to the particle surface. The polymer branches are covering the particle surface to inhibit the approach of other particles and reagglomeration is prevented. It is possible to combine both stabilizsation types in one surfactant molecule.

Experimental and Results

The mode of action of powder dispersants is demonstrated by using a black joint filler. The colour is generated by incorporation of black iron oxide pigments. The black joint filler is blended with 0.5% of powder dispersant. To avoid negative impacts of the dispersant regarding workability and consistency, the same parameters are measured as mentioned in the previous paragraphs. To evaluate the dispersing properties of the joint filler, colour strength and L-values are measured using a Datacolor colorimeter. The colour strength describes the capability of the pigments to tint the filler. In this example the dispersant increases the colour strength by 45% (see Table 3). The L value is a measure of the brightness of the surface and the L axis describes the achromatic colours in the L*a*b* colour space. The scale ranges from 0 (black) to 100 (white). A decrease of the L value in this specific example means that the joint filler appears more black.

[1] H. Grube, Beton2003, 12, 598–603.
[2]T.C. Powers, J. Am. Ceram.Soc.1958, 1, 1-6.
[3]A. Guttmann, Patentschrift1920, DRP Nr. 330784
[4] H. Lossier, A. Caquot, Le Génie Civil1944, 8, 61-65.
[5] F.H. Wittmann, Schriftenreihe des Deutschen Ausschusses für Stahlbeton1977, 290, 43–101.

Figure 7: Creating a homogeneous surface and improve pigment distribution by using a powder dispersant

RELAUNCH OF THE ACAT HOMEPAGE!

OUR NEW HOMEPAGE IS ONLINE!

Discover our New Website!

AUTHOR: **SUSANNE DURST**

We are pleased to present our new website. The new design reflects our new approach to better meet the requirements of visitors. Now all relevant information is just a mouse click away:

New Structure

The previous five business areas are now divided into three main divisions:

- Envirotech (Environmental products and solutions, machinery and plant engineering),
- Chemtech and
- Papertech

So the user gets a better overview and orientation.

More information

Click on "more info" for any product group and you will find relevant topics, current reports and case studies on these products we have gained through many years experience.

New contacts

The advanced filter "country" helps you to specifically search for the knowledgeable contact person for each country, function and business division worldwide.

Please contact us, if you have any question or suggestion. We are grateful for any feedback!

EDMUND ASSIBI: Eurozone Start-up & SME Funding via a Unified Capital Market

Financial Instrument Innovation supported by Policy Enhancements

Book Summary:

The global financial crisis has resulted in credit constraints that have made it even harder for entrepreneurs starting up or trying to expand to obtain requisite funding. Since Start-ups and mainly SMEs are the growth engines of most economies, ensuring that they can be born, grow and thrive is essential to economic prosperity within the Eurozone. The development of a bond market for Eurozone Start-ups and SMEs would present a significant breakthrough. By careful structuring and robust monitoring this can become a viable alternative to scarce and hard to acquire bank loans with high borrowing costs. This book proposes a model in which the European Investment Fund takes a central role in issuing these bonds and providing guarantee structures to minimize risk for private and institutional investors. This model will serve to augment venture capital and other funding options fostering a multi-faceted approach to enhancing access to funding for Eurozone Start-ups and SMEs.

Edmund Assibi B.A. M.Sc.

Edmund Assibi B.A. M.Sc. is Ghanaian national whose education and career have spanned across Africa, Asia, Europe and the USA. Over the past decade he has occupied various roles in Banking, Management Consulting, and Int'l Business Development. He currently works as a Finance, Controlling and Strategic Planning Manager for APPLIED CHEMICALS International Group.

Background:

This book is the end result of a successful Master Thesis topic that originated from my past experiences working in the banking sector and also with start-up initiatives. I have always been a strong believer that the start-up that eventually grows into a small-to-medium sized enterprise (SME) is the most promising component of any economy. The issue of adequate financing options for start-up ventures to be realized and further for their subsequent growth, domestic expansion and internationalization after evolution into SMEs is one that has been a key interest of mine for a long time. I have always imagined situations in which start-ups and SMEs could access the financing they need as easily as large corporate entities, and what this would mean for economic growth. It is my hope that through I have been successful in presenting a potential solution that will stimulate start-up and SME financing, and catalyse economic growth across the Eurozone. My desire is that this model and its possible permutations will create the conditions for dialogue and action to define a way forward for policy enhancements that foster a boost in economic activity and provides opportunities for start-ups and SMEs within the Eurozone, which is home to brilliant innovation and entrepreneurship zeal.

Eurozone Start-up & SME Funding via a Unified Capital Market

Financial Instrument Innovation supported by Policy Enhancements

Book Availability:
www.morebooks.de (EU) and
www.amazon.com (North America/Global)

IN A FAR AWAY COUNTRY AT A NEW AGE - An Adventure Called Baikal

Without doubt there are many readers who also have taken exciting trips to the remotest parts of our planet – for sales representatives sometimes it is part of the job. For this group of persons the following story might be old hat, but seen with my eyes, in any case the "Adventure Baikal" was the craziest trip I have ever made.

Photo: private

AUTHOR: **HANS HERTEL**

Without doubt there are many readers who also have taken exciting trips to the remotest parts of our planet – for the ACAT sales representatives sometimes it is part of the job. For this group of persons the following story might be old hat, but seen with my eyes, in any case the "Adventure Baikal" was the craziest trip I have ever made.

It is quite true that I probably should have asked in more detail what possibly could be expected when travelling to Siberia. Perhaps I should have asked one of the many colleagues who have already worked in Eastern Europe, then I might have realized that one cannot simply travel to Siberia! But, so what! At least since the last general election we know from Peer Steinbrück: "What is gone, is gone, it's no use mourning."

It was the early 90s, during the interim period from communism to glasnost, when we were asked by a well-known Russian Institute in St. Petersburg – Russians call it Petterburg – to visit the paper mill in Selenginsk, in order to improve the retention of the nine (!) paper machines and to reduce the pollutant load of the wastewater, which left the paper mill nearly untreated and burdened the Selenga River and consequently the Lake Baikal. At that time the team of the ACAT paper department tried to get a slice of the big Russian cake that had just being cut. It was a good timing and therefore we gave an assurance to our Russian friends in St. Petersburg and we arranged a meeting.

People who have already worked in Eastern Europe know how these things are handled in Russia - at that time it was called USSR: the Institute"A" takes over the organization of the whole trip, the interpreting and the supervision of the experiments. In most cases, in addi-

tion an Institute “B” at the destination ensures a visit by "specialists" on-site; and it also controls a part of the organization. It was exactly the same with us.
In the further course of my story, I will hardly use names, but Boris from St. Petersburg deserves necessarily to be named. Boris, a staff member of the Institute of Paper and Pulp - and by the way a good-hearted soul - was large, chubby, friendly and slow. This was true for thinking, talking as well as for moving. It turned out soon enough that this was not always helpful for our activities on Lake Baikal. And, last but not least, Boris spoke only a rather modest English, just as I did.
Boris, who had a certain similarity to a teddy bear, picked me up at the St. Petersburg Airport and took me to the institute. To avoid losing valuable time, we wanted to fly immediately in the late evening to Siberia to catch the night train in Irkutsk to Selenginsk next day. There were a few hours left, and Boris - as I have mentioned before, was good heartedness itself –took me to a sight-seeing tour through St. Petersburg. For me this was the most beautiful town I have ever seen, except Hamburg. Actually, I could tell you now, what we have seen on our city tour, such as the wax museum with Russia's former politicians - Lenin, Stalin or Gorbachev. But in order to get in the mood for the trip, I will better tell you about the things that happened in the afternoon. First, we had to pick up Boris' private car from the garage. It took us about 10 minutes to walk there. Arriving at the garage made of corrugated iron the not very young Lada was „unleashed". This meant that the claw, which was secured with a large chain and a padlock linking the steering wheel and the gas pedal, had to be removed piece by piece. This is not too bad if you have to do it only once every few days. But we left the car three or four times this afternoon, sometimes only for a few moments e.g., to enjoy the beautiful view of the river or to go to the museum. And Boris always carried out the same time consuming procedure, to prevent his car from being stolen..
After visiting the city we returned the car to the garage - one can imagine how much time is lost with such trifles. Then Boris took me to his home. He lived together with his wife and his mother in a two-room apartment with kitchen in one of those prefabricated buildings we know from Eastern Bloc countries. Possibly, or rather surely, I - the troublemaker from the West - was the reason why without exception the residents met silently. At half past seven clock in the evening a taxi picked us up and took us to the airport. The domestic flight St. Petersburg - Irkutsk started on time at 10.30 p.m. It was well booked with a colourful crowd of passengers. Also a few chickens were cackling in the basket on the lap of my neighbour. Moreover, I was not really sure if each passenger had a seat of his own, because sometimes passengers shared one place. This double burden could have been the explanation for the condition of the seats, as - to put it mildly - they were a little bit worn-out.
At that time I was a heavy smoker and smoking on board was already strictly forbidden. Anyone, who knows that the flight to Irkutsk takes about twelve hours will understand that a smoker must use some tricks to overcome such a long period of time without nicotine: the most effective sleep aid was the obligatory 'sto gram' (= 100 g) Vodka , again and again one meets it almost compulsively in Russia. Although on board alcohol was strictly forbidden most of the passengers drunk and made no secret out of it.
Unfortunately, our Ilyushin machine was not set up for a non-stop flight. So we had to stop over in the middle of the night at an airport in Kazakhstan to refuel the plane. For this purpose, all passengers had to leave the plane and they had to wait for the refuelling process - not at a waiting room or something like that, but at a draughty corner on the airfield. For a number of smokers it was a welcome opportunity, to hurriedly smoke some cigarettes. Of course, this was forbidden, but nevertheless, many people smoked. Mind: we were at the open airfield! Imagine, what would happen, if someone takes the liberty of doing this at Frankfurt, Vienna or Munich Airport!
For the second part of the flight it was absolutely necessary to take another “sleeping pill”, and the desired effect was forthcoming. And finally - after 6,000 kilometres or after an approximately twelve-hour flight we landed in Irkutsk. Due to time difference, it was not 10 a.m but already 1p.m and now the real troubles of this journey began.

This remarkable story will be continued in the next issue!

Profile Hans Hertel

Until 1957
Years of study and meaninglessness
1958 – 1963:
Training as a papermaker
Practice: at Buchmann GmbH,
Studies: OvM-Polytechnikum,
1963 – 1978
working in paper production with different responsibilities- Himmelmann, Fröndenberg
1979 – 1983
paper machine construction- Kleinewefers, Krefeld
1983 – 1986
field service for supply industry - Allied Colloids, Hamburg
Since 1986 head of paper division, Allied Colloids, Hamburg later Ciba AG, Lampertheim
In 2005 retirement

ANNIVERSARIES

Barbara Scaramelli: 25 Years ACAT Italy

Dear Barbara, we are happy to congratulate you on your 25th year as a member of the ACAT team. With your excellent work you have shown your dedication to our group all these years, years of technological development, cultural change and economic instability when the experience of dedicated men and women have contributed to the growth of the group.
With so many others in our group, Barbara is living proof that determination, passion and a spirit of cooperation are the key to make our daily work positive. We wish to celebrate this anniversary as a step in our long journey together and with so many new projects awaiting us, we are sure that you will dedicate yourself to the best of your abilities, as you have always done.
ACAT Company wish you and us nothing more than this: Stay as you are - and continue to have as much fun and joy in your job! *CB*

Bernhard Anzenberger: 25 Years ACAT Scheibbs

For 25 years Bernhard Anzenberger has been a great support for the company, with his extensive practical electrical engineering expertise. In the early years he was definitely needed in ACAT-paper division and was considerably involved in the construction of our first plant.
From the very beginning Bernhard participated in the construction of the logistics centre in Scheibbs.
He contributed his energy as well as his theoretical knowledge and practical skill to this project. He is still highly motivated and full of energy.
It is not easy to define exactly his area of responsibility, because he can be assigned to many different areas of our division. ACAT thanks Bernhard sincerely, for the many years of excellent cooperation.
We wish you many more successful years and we look forward to work together for a long time.

WT

Karel Skoda: 15 Years ACAT

I would like to take the opportunity to congratulate Dr. Karel Skoda on 15 years in the service of our company. Karel is a passionate and excellent technician. During his several years of work he primarily built up the market for the products of the Münzing Company for ACAT. He is characterized by a high degree of expertise and tireless commitment.
I like to remember travelling together and the nice weekends at his home near Olomouc. Karel is also an enthusiastic hiker and a dog lover with his bulldog in particular, a subject close to his heart.
I am very pleased to work with Karel in a team and I would like to thank him for the excellent cooperation.

FR

Paula Ignatescu - 15 Years ACAT Romania

Fotos: Christine Nestler-Kenzian (2)

For 15 years Mrs. DI Paula Ignatescu has been working for ACAT. She is responsible for the difficult market of Romania, which she manages successfully. With a high degree of commitment Paula Ignatescu represents the ACAT product portfolio in this highly competitive growth market.
Paula has always made herself conspicuous with her great willingness to learn and thirst for knowledge. Although she brought up two children, who are now grown up, she was always fond of traveling and zest for action. I hope that Paula will be on hand with her expertise and motivation for many years. I would like to take this opportunity to thank her very much for her excellent cooperation.

FR

ANNIVERSARIES

Per O. Bjöörn: 10 Years ACAT

It is unbelievable how fast time flies. Soon Per O. Bjöörn will celebrate his 10th anniversary. After the extensive phase of getting to know our various divisions, Per quickly became part of the management in Basel and Milan. At the same time he became well acquainted with our youngest business branch – odour control – and he met the new challenge with success. More than a year ago he took over the overall responsibility of the ACAT environmental departments. Environmental engineering is a rapidly growing future-oriented market, with increasing international activities. Certainly it will strengthen our position, but this comprehensive task turns your hair grey - as I know well from experience.

Despite stormy times and increasing responsibility Per has started a family. Being the proud father of two children, he is interested in working for their future. For the time being he is responsible for the environmental engineering, but at a future date he will bear responsibility for the entire ACAT group!

Congratulations on your tenth anniversary and many thanks for your great commitment in the service of our company! We look forward to a successful future together! MZ

NEWCOMERS

DI Dr. Kiril Atanasoff-Kardjalieff

Photos: Christine Nestler-Kenzian (2)

Since January 2014 DI Dr. Kiril Atanasoff-Kardjalieff has strengthened the team of ACAT environmental plant and mechanical engineering division as a technical manager and consultant. Kiril Atanasoff-Kardjalieff completed his degree in Agricultural Engineering and Water Management at the University of Natural Resources and Life Sciences, Vienna. Subsequently, he worked as an assistant at the Institute for Water Quality, Resource and Waste Management, TU Vienna. While working at the Institute of Sanitary Engineering and Water Pollution Control of the University of Natural Resources and Life Science he completed his doctoral dissertation. Plant engineering and planning companies in Germany and Austria were the further milestones in his career. Since 1997 DI Dr. Atanasoff-Kardjalieff has been working as a civil engineer primarily for Sanitary Engineering and Water Management. Since 2002 he has worked as a generally sworn and court-certified expert. Besides working for ACAT among others things, he is a lecturer at the University of Applied Sciences in Wels for the course "Bio and Environmental Technology", and CEO of the Abwasserverband „Raum Korneuburg". Because of his extensive activities there is not much time for leisure. Atanasoff-Kardjalieff is looking forward to providing ACAT's environmental plant and mechanical engineering division with his long term experience in plant and process engineering and in wastewater treatment. MZ

SPECIAL EVENT

Congratulation, she's got it!

Kirsty Austin - involved with all the administrative duties of the Durban branch including Payroll, Orders and Accounting in our Office in South Africa - has got her Degree as a Bachelor of Commerce! For three years Kirsty studied through UNISA (The University of South Africa). The degree she's got now is a Business degree with a specialisation in Law. We wish Kirsty a lot of success and much satisfaction with her job in our Company - now as a Bcom Law!

WELCOME BABY!

Latest News: Yippee, Baby Marlon arrived!

Good vibrations: On 19th of March little Marlon Nowakowski was born at 5.45 pm. Marlon's parents David und Gaby are very proud and happy and so is the whole ACAT-Team!

Imprint inside acat, issue 19, April 2014

Owner, publisher and ©: Applied Chemicals International AG
CH-4015 Basle, Neubadstrasse 7
T: + 43 1 979 34 73, F: + 43 1 979 34 73-14555
e-mail: international@acat.com Website: www.acat.com
Editor: Dr. Gildis Grabner Layout: Dieter Spet
Cover: MIBA spol. s.r.o., Photos unless indicated otherwise: ACAT; Printing: Bösmüller Print, A-1020 Vienna

OUR PRODUCTS:

chem tech

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

enviro tech

air tech

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

machine tech

Complete Solutions around the Mechanical Sewage- and Sludge Treatment

Complete Solutions and System Components for Mechanical Sludge Dewatering
Process Engineering
Solar Drying Systems
Low Temperature Conversion
Screw Pumps
Components of a Mechanical Sewage Treatment Plant
Machinery Service / Spare Part Sales

water tech

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

paper tech

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

acat.com

your global partner for better solutions

ACAT International Group
Neubadstrasse 7
CH-4015 Basle
Switzerland
T +41 61 282 82 80
F +41 61 282 82 89
international@acat.com

Offices

Europe

Austria
Germany
Hungary
Italy
Switzerland
United Kingdom

Africa

South Africa

Asia

Singapore

Locations

Europe

France
Romania

Processing areas

Europe

Belgium
Croatia
Czech Republic
Moldova
Poland
Portugal
Slovakia
Slovenia
Spain

Partners

Europe

Denmark
Luxembourg
Norway
The Netherlands
Serbia
Sweden
Turkey

America

U.S.A.
Colombia

Asia

United Arab Emirates
India
Indonesia
Russia
Thailand