

PURE

EXPERTISE

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IN A NUTSHELL

ACHEMA 2015: WORLD FORUM FOR THE PROCESS INDUSTRY

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The Board of Management (from left to right): Yves Zimmermann, Joachim Engelmann, Jörg Engelmann

Dear readers,

“Proximity” is a term with many dimensions: geographical and with regard to both content and time. In our contact with our partners we aim to be both personally involved and contactable, close by – including directly on site at our customers. One example of this is our cooperation with BASF Schwarzheide GmbH. In the article and interview on page 10ff. you can find out what makes this partnership a special one.

Geographical proximity is also an advantage when it comes to the use of sulphuric acid. Instead of going to the trouble of arranging deliveries, plants in remote areas can now undertake the production of small quantities of sulphuric acid themselves on site. A new CAC procedure makes this possible in collaboration with our subsidiary HUGO PETERSEN (page 4).

We are also collaborating with scientists. Our cooperation with the TU Bergakademie Freiberg delivers new impulses for our own research and development. Proximity to young scientific talent also drives us on. We support students with grants and facilitate direct contact to young people via internships, theses and a trainee programme. More about this on page 20.

“Look, goodness is so close,” wrote Johann Wolfgang von Goethe. Read how this manifests itself at CAC.

Jörg Engelmann

Joachim Engelmann

Yves Zimmermann



Compact solution for sulphuric acid technology

For the manufacture of sulphuric acid CAC and its subsidiary HUGO PETERSEN have developed a new solution that offers major advantages for users with low demand in remote areas.

Fertilisers, paper, synthetics and dyes – just a small selection of the products that are manufactured using sulphuric acid. For decades, sulphuric acid has been one of the most important base substances of the chemical and metallurgical industries. It is highly versatile in its range of applications and a key component of a wide variety of processes. Alongside the production output of chlorine, sulphuric acid capacity is an indicator of industrial development and the standard of performance

of a country – after all, many everyday products cannot be produced efficiently without it.

Around 70 percent of the global annual production of sulphuric acid is used in the manufacture of fertilisers, thereby enabling rich harvests. In addition, it is also used in the manufacture of plastics and tensides for detergents and dyes. Beyond this, the production of sulphuric acid is also of great significance in the processing of sulphidic ore in



Partial view of a sulphuric acid plant

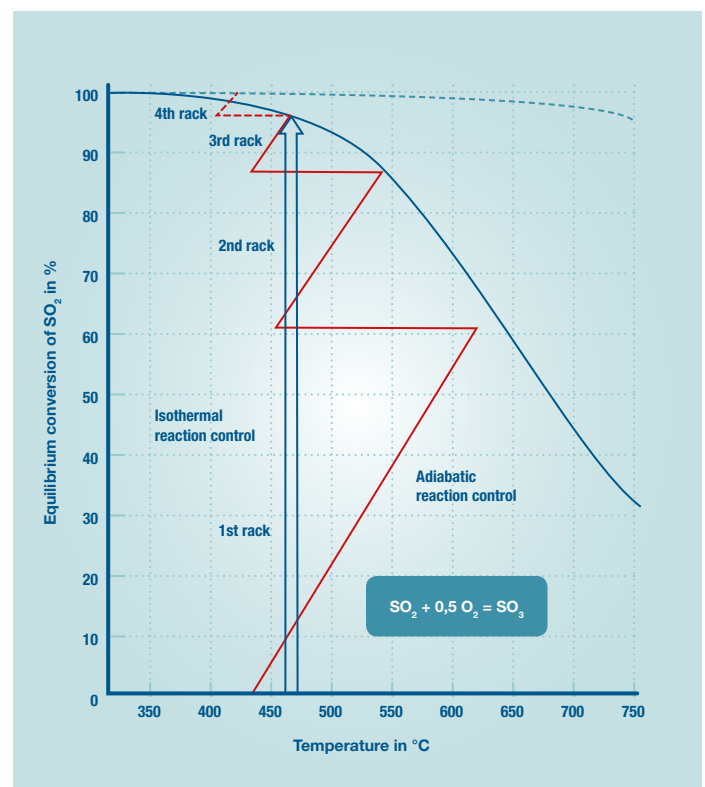
the pyrometallurgical industry. Hydrometallurgical processes use sulphuric acid to leach out ore and in the subsequent extraction of the metals.

The production of sulphuric acid is a cost-intensive process. The conventional procedure is based upon an adiabatic reaction control of the catalytic oxidation of SO_2 . In a rack reactor a reaction gas is transported across multiple reaction stages in spatially-divided fixed beds to achieve a high conversion factor. Such a plant requires a large operating area and is therefore only economical for the production of large quantities of sulphuric acid in the range of 100,000 to 500,000 tonnes per year, but rarely for small, specialised companies.

Smaller and more efficient

In remote areas in particular, relatively small volumes of sulphuric acid are used for the manufacture of hydrofluoric acid or explosives and for the leaching of heavy metals from ore. The transportation of sulphuric acid to these areas is subject to strict regulations, complicated and risky.

As a consequence CAC and its subsidiary HUGO PETERSEN have optimised the classic process, which now enables the manufacture of sulphuric acid in small quantities of up to 25,000 tonnes per year. "The objective here is to make the reactor in particular smaller and more compact, with improved efficiency," explains Dr. Mario Kuschel, ▶

Equilibrium conversion rate of SO_2 depending on temperature with illustration of reaction control



Partial view of a sulphuric acid plant

Head of Process Engineering at CAC. This involves a catalyst bed being transformed into a fluid-like state by the reaction gas. In this way flow conditions are created in which the reaction heat is transferred from the inside of the catalyst bed in a highly efficient manner. With the isothermal reaction control achieved it is possible to achieve a conversion rate of over 95 percent with just one fluid bed stage. With the standard process at least three adiabatic reaction stages would be required for such a conversion factor. As a consequence, the new fluid bed technology can be used to construct plants for the production of sulphuric acid that are smaller and more efficient.

From single particle to the whole process

With the development of this technology, the process engineers at CAC and HUGO PETERSEN have mastered one of the industry's great challenges. At first it was necessary to develop a catalyst that was based on a proven catalytic system and fulfilled the requirements for use in the fluid bed. "To achieve this we firstly investigated and simulated the complex interaction of kinetics, material and heat transport as well as fluid dynamics in the transformation of SO₂ in the fluid bed. On the basis of these observations and the conducting of technical trials, in cooperation with further partners in the industry we were able to develop a new catalyst," reports Dr. Norbert Völkel, who played a key role in coordinating and implementing the work in the Process Engineering/Technology Development business units at CAC. "The composition and the textural and mechanical properties of the catalyst are tailored directly to the specific conditions of the fluid bed process." The new fluid bed technology was subsequently successfully tested in a test plant with a capacity of 100 tonnes per year. Next year

there are plans to construct the first industrial plant with a capacity of 25,000 tonnes per year, according to the optimistic expectations of CAC. There is no need to transport the mineral acid, thus minimising the risks of accidents and maximising the safety of both people and the environment.

Beyond the process

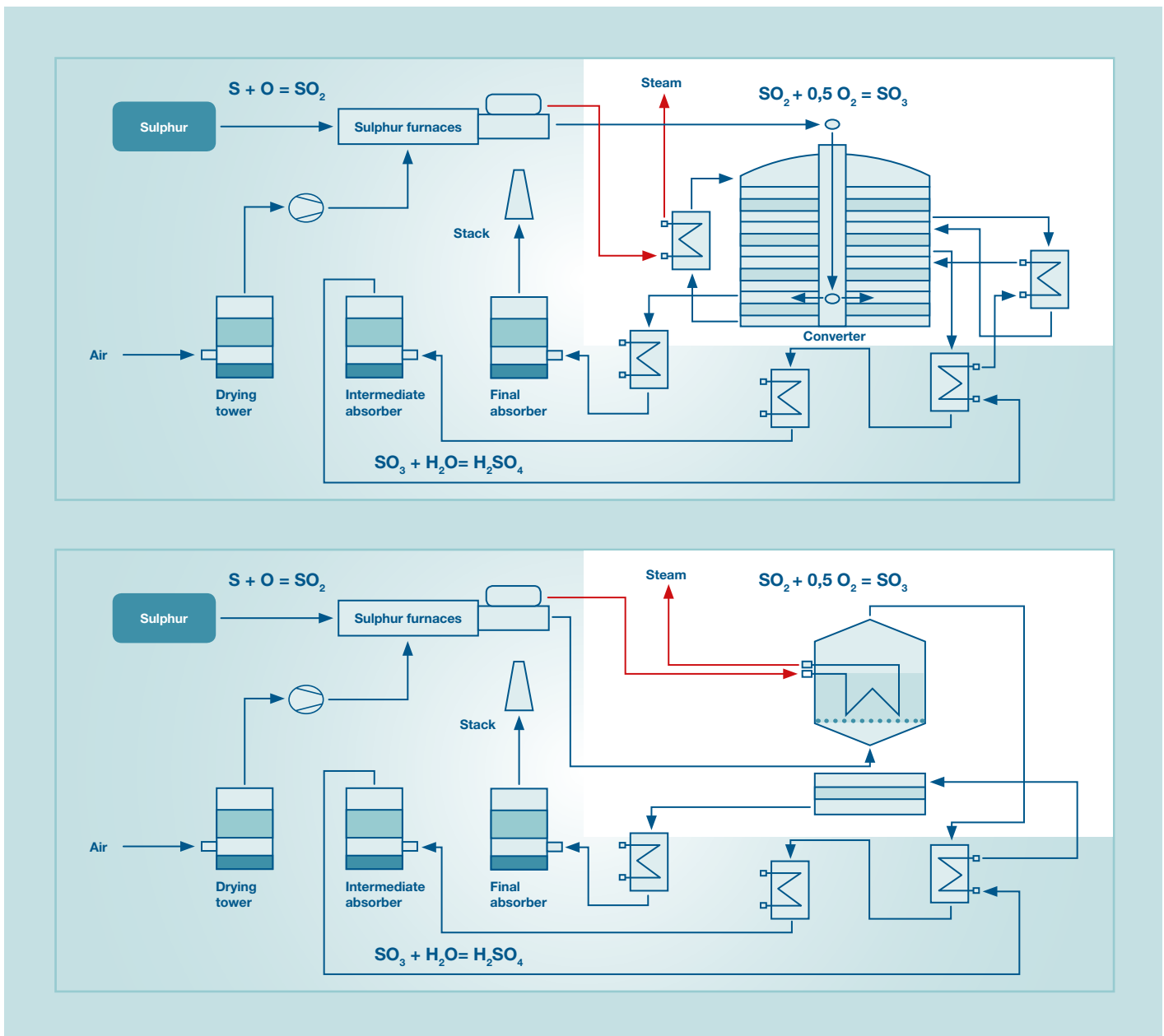
The newly-developed procedure releases a large amount of energy in form of reaction heat. To enable this energy to be utilised, the engineers at CAC have thought beyond the manufacture of sulphuric acid and extended the system to include some clever functions. Although the reaction heat continues to generate steam, the place at which the heat is rejected from the process has been optimised. Using the steam generated it is possible to generate electricity or heat the buildings on the site.

This is joined by a compact design, which enables the complete system to be installed on a skid. In cooperation with HUGO PETERSEN, the TU Bergakademie Freiberg and an industrial partner, CAC is currently working to optimise the small-tonnage facility in order to make the production of sulphuric acid on a plant site more efficient. The comprehensive improvements to the process as a whole are giving rise to further areas of application.

As a skid-mounted unit the plant can be simply transported where required and operated as an additional unit parallel to an existing plant, thus providing the option of expanding capacity on site in the event of increasing demand. In addition, the isothermal reaction control means ▶



Eyes on the process. The new fluid bed technology allows for the construction of smaller and more efficient plants for the production of sulphuric acid.



Comparison of the classical fixed-bed technology (top) to the fluid-bed process (bottom)

that the technology is also suitable for the treatment of oxygen-enriched process gases with a high SO_2 content, as is typical of metallurgical processes, and for wet catalytic conversion.

process of supplying the acid. "Anyone who has to buy sulphuric acid on the market is bound by conditions and delivery prices," explains Mario Kuschel.

Good prospects

In the next step the new process is to be used to research more efficient production of raw materials in ore mining. Sulphuric acid is essential in the mining of ores such as uranium. Within the scope of the in-situ leaching method (ISL), the mineral is obtained from the solid via chemical extraction. Boreholes are sunk to reach the ore deposits, with sulphuric acid then used as an extraction material, added to the ore-containing rock via the injection boreholes.

Opening up mineral deposits in order to extract the respective ore requires quantities of 10,000 to 50,000 tonnes of sulphuric acid per year at an extraction site. To date, producing sulphuric acid on site has been uneconomical, however. In future, small-capacity plants for the local production of sulphuric acid should help companies to be economically independent and, above all, save costs for the complex



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i HUGO PETERSEN

The longstanding company HUGO PETERSEN was founded approximately 110 years ago in Berlin. The extensive know-how regarding the planning and realisation of sulphuric acid plants can be traced back to the eponymous founder, who began testing and establishing his new ideas for the production of sulphuric acid as early as 1886. HUGO PETERSEN has been based in Wiesbaden since 1945 and has operated under the umbrella of Chemieanlagenbau

Chemnitz GmbH since 2005. Today, HUGO PETERSEN is one of the most experienced and accomplished specialists in the field of sulphuric acid, hydrochloric acid and gas cleaning technology. Using technology proven over the course of 100 years, the company constructs sulphuric acid plants for the highest requirements and develops full-service concepts.

The technological focal points of the company lie in the areas of:

- Sulphuric acid
- Hydrochloric acid
- Gas cleaning



Sulphuric acid technology

- Comprehensive experience in the various forms of sulphuric acid technology: Dry catalysis, wet catalysis, nitrogen technologies, oxidative wet cleaning
- BAT level technology (best available technology)
- Extremely low SO₃ and H₂SO₄ emissions in exhaust gas
- Tail gas cleaning offers lowest emissions
- Maximum energy recovery from the conversion and absorption system

Gas cleaning technology

- Over 60 years of experience in gas cleaning
- BAT level technology (best available technology)
- Especially environmentally-friendly
- Extremely low emissions in exhaust gas
- Maximum energy recovery from the conversion and absorption system
- Cross-border technologies



Partnership with prospects

BASF Schwarzheide GmbH and CAC are strengthening their partnership. The two companies have been cooperating together since June 2014 on the basis of the so-called Engineering Partner concept. With its engineering services, CAC is helping to expand capacity at BASF Schwarzheide.

“Thanks to the extended cooperation between us we can handle more projects and focus on our core engineering competencies, such as concept planning, coordinational activities such as project management and controlling, quality assurance and the acceptance and approval of external services,” explains Joachim Rauch, head of the Site Services and Infrastructure unit at BASF Schwarzheide GmbH.

CAC was recruited as a specialist for basic and detail engineering. The tasks involved primarily concern interdisciplinary, networked planning services, which the Chemnitz-based

company is better placed to carry out in its capacity as an external partner. In the scope of the contractually-regulated collaboration CAC has its own offices on the Schwarzheide site and is seamlessly integrated in the internal BASF procedures, with the consequence that no interface difficulties exist. Three CAC employees currently work permanently on the site, with up to eight available where required. This team represents the areas of expertise that the company brings to the cooperation: process engineering, plant planning, mechanical engineering and equipment as well as electronics, instrumentation and control technology.



Evaporation plant EDA 2 in Schwarzheide

First projects a success

Successfully completed projects form the basis for the contractual regulation of the cooperation that has now been established. In 2014 CAC constructed a new evaporation plant for BASF “in time and budget” over the course of one year – an important sub-project in the plant expansion to accommodate production of a crop protection active ingredient, with the collaboration taking the form of an EPC contract. Joachim Rauch explains why CAC was selected in the call for tenders: “A high degree of professionalism and quality from planning to completion, in combination with a competitive offer – this is what we expected and this is what we got from CAC. Everything worked well, due in part to the regional proximity.”

Today, various small projects are already underway as a result of the new agreement. These are primarily operational projects where the optimisation of processes and expansion of production are typical requirements. CAC receives a specified task from BASF and on the basis of this, cooperates with the planning and operations teams at BASF to develop proposals for solutions.

The roots of the cooperation with the BASF group lie further in the past. The foundation for the collaboration was laid when CAC was involved as EPCm partner in the construction of an oleum/sulphuric acid plant in Antwerp, on the basis of the HUGO PETERSEN technology. Since that time there has been an avid interaction between the companies.

“In our ‘We create chemistry’ strategy we have formulated our high requirements with regard to quality, industrial health and safety as well as environmental protection. We select our partners on the basis of

these aspects, and with their help we are able to react flexibly to the investment plans of BASF business units and resident companies,” emphasises Joachim Rauch. Joachim Engelmann, Managing Director of CAC, adds: “We are proud to have been chosen as engineering partners. The conclusion of the framework agreement with BASF Schwarzheide is a significant indication of long-term and continuous cooperation.”

About BASF Schwarzheide

The production site in Lusatia is part of BASF – the worldwide leading chemical company. Its portfolio comprises polyurethane basic products and systems, plant protection agents, water-based paints, technical synthetics, foams, dispersions and Laromer brands. Sales in 2014 stood at 1.048 billion euros.

Alongside the superb connections to the BASF Group product network in the form of daily block train transport, the site also benefits from excellent logistical connections. There is a connection to the Deutsche Bahn rail network and a junction with the A 13 motor way. A high-performance intermodal transport terminal operated by the Bertschi Group enables goods to be shifted from road to rail.

Twelve manufacturing and 32 service companies have established themselves on the site. These companies can take advantage of extensive service offers in the fields of technology, analytics and logistics. The location management office at the site also offers additional services for newcomers. These range from consulting and local authority contacts to support with approval processes and the undertaking of complete construction projects. ■



Joachim Rauch, BASF (second from left), and Joachim Engelmann, CAC (centre)

“Identification and commitment”

Benjamin Hepfer, Head of Site Engineering at BASF Schwarzheide GmbH, talks to PURE about the cooperation with CAC.

PURE: Mr Hepfer, what is the position of the Schwarzheide site within BASF with regard to history, services, customers and prospects?

Benjamin Hepfer: 25 years after the takeover by the parent company, BASF Schwarzheide GmbH is a modern, reliable and competitive company within the BASF Group and a beacon in the region.

Over 1.6 billion euros have been invested since 1990. In addition to capable production facilities, a modern infrastructure has been created. This includes the environmentally-friendly and energy-efficient gas and steam

turbine power plant, a central water treatment plant, two evaporation plants and a waste incinerator plant for the thermal disposal of production residue and waste that cannot be recycled.

In the course of the “We create chemistry” strategy of the BASF Group, the site focuses specifically on the manufacture of custom products together with functional materials and solutions.

PURE: What role does the Schwarzheide site play in the Lusatia region?

Benjamin Hepfer: At the end of 2014 there were a total of 1,736 employees working at BASF Schwarzheide GmbH. These are supported by leased personnel and contractors. There has been a significant increase in the number of employees at companies that have located to the site, as well as third-party companies. Together with the employees of other BASF Group companies, other companies and service providers, around 3,400 people are employed at the Schwarzheide site.

Beyond this, BASF Schwarzheide GmbH provides sustained support to the region. To secure its own supply of young specialists whilst strengthening the region as a whole, BASF Schwarzheide GmbH continuously trains in excess of its requirements. The training ratio in 2014 stood at around ten percent again, clearly above the German average. The company focuses on positive interaction between innovative educational establishments and a diverse university system. The MINT initiative launched locally in 2011 was extended to five grammar schools in the region in 2014. Under the MINTregio label pupil skills in the MINT disciplines and foreign languages are promoted and exclusive placements offered at companies in the region.

PURE: How long had BASF and CAC been working together before their cooperation was cemented in the form of the framework agreement, the Engineering Partner concept?

Benjamin Hepfer: CAC completed an oleum/sulphuric acid plant for BASF in Antwerp in 2011 – the largest of its kind in the world. We cooperated together in Schwarzheide for the first time in 2012.

PURE: What projects or type of projects were completed in the past?

Benjamin Hepfer: In Schwarzheide in particular, CAC completed the construction of the new evaporation plant (EDA 2), an important sub-project in plant expansion.

PURE: What exactly does the Engineering Partner concept consist of? What practical form does the collaboration between BASF Schwarzheide and CAC take?

Benjamin Hepfer: Primarily, the Engineering Partner concept is based on a trust-based collaboration, in which the engineering partner generally undertakes projects independently after the concept planning stage and realises the detail engineering to a successful conclusion.

PURE: How and why did talks begin on this cooperation concept? Where were the commonalities between the companies?

Benjamin Hepfer: Well, naturally, the smooth-running of the realisation of the new evaporation plant was decisive in this. This showed that the high quality standards of CAC match our own. Reliability, constructive problem resolution and sustainable corporate philosophy are key values for both CAC and BASF. ▶



The company premises of BASF Schwarzheide GmbH





PURE: What does the strengthened partnership mean for the Schwarzheide site and how could and can CAC contribute to its further development?

Benjamin Hepfer: There is a high degree of identification and strong personal commitment of both partners to the project. CAC can bring added value to the Schwarzheide site through consistent and fundamental representation of the prerequisites required for efficient and effective project planning. At the same time, CAC is also able to benefit from the necessary company-specific flexibility requirements of BASF and the associated planning with specific uncertainties.

PURE: What projects are there in the pipeline?

Benjamin Hepfer: In the course of the further development of the site we expect to see further projects to expand production, as well as for the extension of infrastructure.

PURE: Why did BASF specifically choose CAC as its partner? What factors were decisive for the determination of a long-term perspective?

Benjamin Hepfer: CAC was chosen ahead of several other bidders and offers all of the necessary disciplines in its portfolio. Alongside engineering, CAC also has a high degree of expertise in the execution of projects, with the geographical proximity enabling it to offer a comprehensive service. In short, there is simply a fit between CAC and BASF Schwarzheide as far as companies and projects are concerned.

PURE: How would you characterise the partnership as a whole?

Benjamin Hepfer: The cooperation between the companies is very much a partnership. BASF and CAC are equal partners in this. This enables us to develop and realise sustainable projects from which all those involved can gain a financial benefit. But above all, it adds to the common pool of extensive know-how.

PURE: Mr Hepfer, thank you very much. ■



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Tailor-made project financing

Early and well thought-out finance planning is key to the early realisation of a project. In this, CAC acts as a mediator between the customer and a German bank, undertakes coordination tasks and subsequently enables the financing of the respective project.

In addition to its familiar engineering services, CAC also offers support in the financing of projects in the field of plant engineering. In particular with regard to the sale of plants beyond the borders of Germany, the company can turn to an extensive wealth of experience and numerous contacts both domestically and abroad.

Solid foundation

In the past fifty years CAC and the predecessor companies have completed over 200 plant engineering projects. Many of these were realised outside of Germany, of which 60 were completed in Russia or the territories

of the former Soviet Union. "Each CAC plant is individual, which means that it is not possible to simply transfer the payment formalities from one project to another," says Jens Schreiber, responsible for financing at CAC. For this reason, the company provides support to its customers in the navigation of the payment and financial planning stages. The level of understanding of the banks for the construction of complex chemical plants is typically as limited as that of the importer with regard to the documentation required by a bank. In addition, language is frequently a barrier to communication between bank and customer, that also needs to be overcome. Here, CAC often assumes the role of organiser, moderator and driving impetus.



Financing may be organized

Not every customer is able to – or wishes to – provide for the financing of the project in his own country, for example, because the conditions there are too unfavourable. In this case, a project-based loan from a first-class German bank with the support of export promotion in the form of guarantees is the best solution. The borrowing party in the case of such financing is either the ordering party itself or its bank, for example Sberbank or Alfabank in the case of Russia.

For many years now CAC has cooperated with several German banks that can provide financing to the ordering parties. In most cases relevant framework agreements or primary contracts already exist between the selected German and foreign banks, regulating the key processes and credit documentation aspects. The agreement on financing of the respective project can subsequently rest on this basis. For exports to the Russian market these processes are well established as a consequence of the large number of projects over the course of the years.

The support of exports and export financing by the German federal government takes the form of guarantees provided by the Euler Hermes export credit insurance company, which assumes the risks on behalf of CAC as well as the financing bank for the entire duration, therefore rendering favourable financing at all possible. The insurance premium incurred can be financed in full via the loan. The amount of the insurance premium is dependent on an economic ranking: decisive here is the grading of the country risk for the borrower by Euler Hermes, its rating and the duration of the loan, which comprises construction time and the time required for repayment. Export credit insurance sets certain minimum standards for financing. These include a down payment of at least 15 percent of the order value, a six-monthly

instalment payment and the stipulation of a date for the commencement of repayment. This generally occurs six months after operational readiness. The financing conditions are negotiated by the bank with the borrower. The basis for the calculation of the interest rate is a reference interest rate of the European financial market (EURIBOR) plus the credit margin of the bank(s).

Save time and minimize bureaucracy

Due to the complexity of the export financing process, which needs to reflect multiple phases in the realisation of a project, work ideally commences on the financing concept as early as the bidding stage. This involves CAC presenting the project in its basic form to several banks and obtaining corresponding offers, as well as clarifying the cover requirements and necessary prerequisites with Euler Hermes. As soon as CAC has been selected as partner by the importer, parallel to the contractual negotiations, work also begins on the selection of the financing bank, the agreement of modalities and drawing up of the necessary documentation.

In this process CAC assumes the initiative and requests cover for fabrication and export from Euler Hermes. As soon as the financing conditions are in place, the bank applies for cover for the loan. Until a cover commitment has been received from Euler Hermes, following a decision of the so-called inter-ministerial committee, all parties continue to work on the disbursement conditions for the financing. One condition is the transfer of the down payment of the importer to CAC, for which a down payment guarantee is generally required to be provided. The disbursement of the loan is not to the borrower, but as a pro rata payment to CAC via a letter of credit or similar payment instrument. ▶

For each delivery or each service carried out CAC hands over previously-agreed verification documents to the financing bank, which subsequently checks the documents, undertakes the payment of the corresponding counter value to CAC and sends the documents to the borrower. Following the start-up of the plant, carried out by the importer with the assistance of CAC, the importer and CAC report operational readiness to the bank, at the same time setting the starting point for the repayment of the loan with the first instalment after six months. The interest already incurred between the first disbursement to CAC and the beginning of repayment can also be financed. This ensures that the importer does not lose liquidity during the investment phase. "In this manner, we have already been able to successfully finance a



number of projects that appeared practically incapable of being realised otherwise," says Jens Schreiber. The experience gained by CAC over the years helps the customer in negotiating the loan.

For the importer it is often the first time that he has taken out foreign financing. "Our experience has shown that we are frequently required to act as moderators between the various partners. In addition, our requirements with regard to banks are very high. We expect that the banks with which we cooperate are not only familiar with the various import countries concerned, but that they are also able to think their way through the project concerned," reports Jens Schreiber. On the one hand, CAC has the necessary credit line for the project-related sureties and guarantees. On the other hand, CAC can offer its customers financing at attractive conditions via collaboration with internationally-oriented banks.



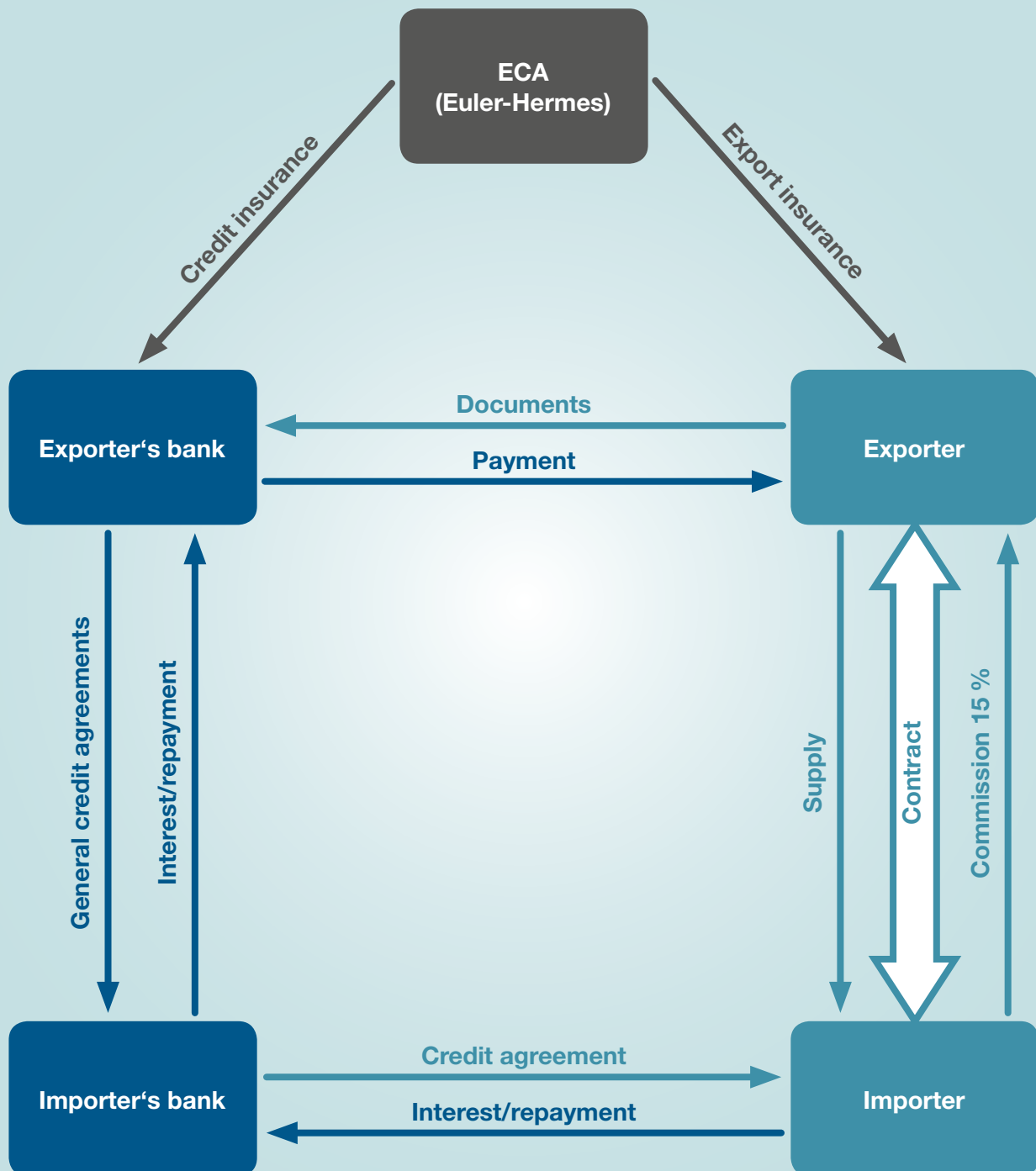
Jens Schreiber
Financing

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i Monetary flow

Foreign investors appreciate financing via German banks. However, in cross-border, loan-financed investments the form taken by the monetary flow plays a decisive role. CAC assumes the role of moderator and mediator in these circumstances. With the help of good

relations with banks in Germany and abroad, this serves to open up reliable channels for financing. A key aspect here is the Euler Hermes export credit insurance, which assumes the financial risk for both CAC and the importer.



The common path of business and science

CAC and the TU Bergakademie Freiberg have been cooperating with one another for over six years now. Together they research and develop in fields such as the processing of synthetic gas into high-octane gasoline.

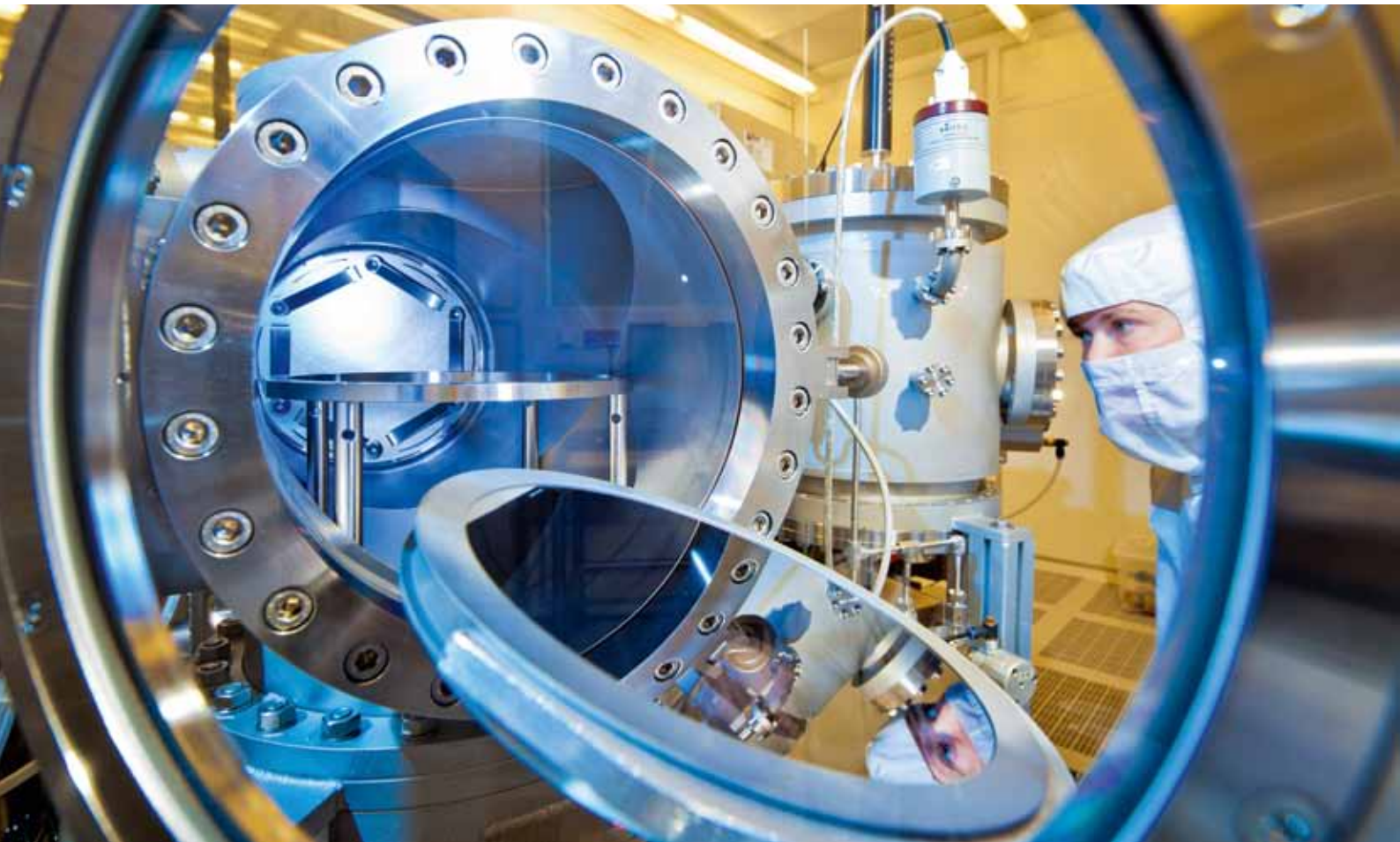


Photo: TU Bergakademie

Beyond the projects jointly realised in the past, the collaboration is also expressed in the form of scholarships and internships that the company awards to students. Many of the current employees at the company graduated from the TU in Freiberg, which this year celebrates its 250th anniversary.

Successful cooperations

Partnership at project level commenced in the year 2008: in a cooperation between CAC and the Institute of Energy Process Engineering and Chemical Engineering at the TU Freiberg, a pilot plant was created that enables ▶

TECHNISCHE UNIVERSITÄT BERGAKADEMIE FREIBERG

The TU Bergakademie Freiberg is one of four universities in Saxony. It states that it is one of the universities that conducts the most research. As the "University of Resources", the TU focuses on securing resources throughout the entire value chain. This involves the exploration of new areas of deposits, the environmentally-friendly extraction of raw materials, the development of alternative energy technologies and more efficient materials and recycling technology. The central idea of sustainable development is paramount at all times.

The TU Bergakademie Freiberg is therefore laying the foundations for the environmentally-friendly supply of society with the resources required for global economic growth.

In Freiberg research is conducted on the underlying basis for practical implementation, in intensive cooperation with regional and national industries (e.g. CAC) as well as international companies. For years now, the professors at the TU Bergakademie Freiberg have numbered amongst the third-party funding elite in Germany.

Founded:	1765
Funding body:	State
Federal state:	Saxony
Employees:	2,107 staff, of which 86 are professors
Students:	5,575 (winter semester 2013/2014)
Core areas:	Mathematics & Science, Geosciences, Engineering, Business Studies & Interdisciplinary
Profile of studies:	8 Diploma courses, 19 Bachelor courses, 30 Master courses



On the occasion of its anniversary, the university presents itself in a newly renovated condition. Photo: TU Bergakademie



high-quality gasoline to be extracted from the associated gas that would otherwise be burnt off unused in the extraction of crude oil (Syngas-to-Fuel, STF – more about this can be found in the detailed article in PURE 1/2015). The process has now been patented in Germany, Canada and Australia, with further patent applications underway. CAC experts joined up with the professors and staff of the Institute of Energy Process Engineering and Chemical Engineering to establish the official alliance partnership. The goal of the project is to make the innovative technology ready for marketing for the first time. In June 2010 the plant produced its first batch of gasoline from syngas. The test campaign was continued – with increasingly purer end products. As a result of the ongoing success of the STF technology, further cooperation projects are planned for the future. Joachim Engelmann explains: “We are delighted with the good partnership and the fruitful interaction at both professional and personal level. The cooperation serves to support the further development of the company through additional scientific resources, to the benefit of all involved.”

Logical step

“Partnership is practically a logical step, with regard to both geographical proximity and content. The specialisation in the processing of base materials and process engineering is a key criterion as far as proximity of content is concerned,” emphasises Dr. Mario Kuschel,

Head of Process Engineering at CAC, who himself once studied at the TU, which is just 36 kilometres distant. “For graduates in Automation and Electrical Engineering, Process Engineering and Mechanical Engineering in particular, the tasks at our company are highly interesting,” he adds. This is one reason, why CAC is a member of the academic support group “Freunde und Förderer der TU Bergakademie Freiberg e.V.”. With this support the company is also stating its commitment to the region and to regional sports clubs. Graduates in engineering subjects can join the company via the “Fascination Plant Engineering” trainee programme, if they are enthusiastic about the multifaceted field of plant engineering and also want to gather experience abroad. Trainees and students looking to prepare their dissertations are also welcome.



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ACHEMA 2015: World forum for the process industry

CAC at the trade summit in June



Every three years the leading companies of the process industry meet in Frankfurt/Main, Germany.



From 15th to 19th June 2015 the leading international forum for chemical engineering and the process industry, ACHEMA, opens its doors once again. Like the years before, CAC will also be present, in hall 9.1 (booth B 26).

This year, there are three subject areas in focus at the ACHEMA: process analytics, industrial water technology and bio-based production. Specialist publications and the congress programme pay particular attention to these three fields. Process analytics extends beyond the recording of measured values: it is through analysis that the decisive information required for the optimisation and automation of processes is acquired. Without process analytics, innovations and changes are inconceivable.

The same also applies for quality assurance and enhancement in the process chain. Exploiting opportunities to the full here requires that contributions be made by numerous players and disciplines. Today, industrial water technology requires an integrated water management in a form that is both cost- and energy-efficient.

The planning and control of flows of water and mass are in the foreground here, alongside the recovery of energy, raw materials and resources. These issues are addressed by process engineers, materials scientists, chemists, plant designers and controls experts in equal measure. Bio is a buzzword that has also established itself in production: a bio-based economy requires specialised processes and components in addition to biotechnological procedures. The ACHEMA also presents the latest developments in these fields. ■

ACHEMA
Messe Frankfurt/Main, Germany

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ALWAYS AN IDEA AHEAD



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