Engineering-Times

PÖRNER GRUPPE | EDL PÖRNER GRUPPE

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Experience the difference:

The Pörner way to a value-optimized plant

The entire process industry is in transition. This does not only refer to refineries and the petrochemical industry regarding climate targets: the industry returns to Europe at an increasing rate; novel, unimaginable business opportunities with recently developed, competitive materials are offered. Financing is feasible by low interest rates. The trend turns to high-quality niche products manufactured in special, intelligently designed plants.

Investors certainly do not lack ideas, but sometimes there is a lack of resources for fast and efficient implementation.

To develop, to design or to modernize such ›value-optimized‹ process plants is the strength of Pörner. In doing so, the Pörner way differs decisively – starting with the project development up to the entire project execution.

Project development on solid foundations

From the very beginning, the perfect project development and structuring - exactly matching the type of process plant - is essential to us, i.e. a comprehensive technical feasibility study of the plant including budget and scheduling to a reasonable depth.

So, a reliable basis for the investment decision is created in close cooperation with the investor.

As if made from one piece

Pörner's holistic project management is based on the experience gained in more than 2,000 projects in industrial process plant construction. Pörner manages, optimizes, plans and coordinates the entire project - from a single source - throughout the entire engineering and execution phase and even beyond.

Creating lasting values

According to the concept of ›Anlagenbau 4.0‹ , we create together with the customer a plant configuration optimally tailored to his needs.

The value optimization of the plant is based on targeted technical selection and strategic procurement of equipment and systems: high-quality components (where quality and availability require it) are combined with low-cost standard components that can be procured on the world market and the use of low-cost local construction and assembly resources.

Thus, the investor gets the optimal plant in accordance with his budget with high productivity, availability and long service life.

Sustainably productive

With our own technologies (e.g. over 60 Biturox® licenses), we are present across the world and have, therefore, gained international experience in global sourcing and local plant construction. This creates plants with the best price-performance ratio.

We are constantly realizing projects with special requirements (e.g. high pressure and temperature, chemical conditions, use of special materials) and more and more large-scale plants - new plants and revamps: high-quality, completed in record time on budget or assembled during short shutdown times. As a reliable plant engineering and construction company in German-speaking countries we have obtained the confidence of important, major industrial customers.

Pörner has existed for 48 years now: Our success over many decades proves us right and at the same time it is an incentive to rank among the best now and in the future.

›Let's create productivity‹ - we develop, plan and realize together the best process plants for the future!

INCLUDES

SUSTAINABLE NICHE TECHNOLOGIES

The industry is interested in high product quality and high yields with a sustainable, resource-saving use of raw materials more than ever before.
With this objective over 50 specialists develop and design important niche technologies at Pörner and EDL. By now eight special-purpose technologies have been created that open up new market opportunities for customers. This refers to special bitumen (Biturox®), liquid / liquid extraction for heavy residues (SDA Plus), aromatics extraction (EDL extraction) and silicate extraction (BIO-SILICATES). Five own pilot plants are permanently in use to develop tailor-made process applications as well as feedstock- and product-specific optimizations.
Customers from all over the world rely on the technology expertise of the Pörner Group. This expertise has continuously been enhanced since 1978 when the first Biturox® plant was built.
In doing so, we help major industrial customers to get products of even higher quality while reducing emissions into the environment at the same time.

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Plant upscaling: Bio-silicates from rice hull ash

Renewable resources. From the demonstration plant to a large-scale plant.

SILICATE
PÖRNER RICE HULL TECHNOLOGY

BY HOLGER HENZE AND MARIO SLESKA

FREIBERG. In nearly ten years of research and development in Grimma and Freiberg, Pörner has created a new, revolutionary, ›green‹ process for the production of high-quality and high-purity silicates from the ash of rice hulls.

The Pörner bio-silicate process does not only provide better products in terms of sustainability but, in contrast to many alternative processes, also in terms of money.

Whereas silica was previously obtained at temperatures of over 1,200 °C based on complex quartz sand processes, the Pörner bio-silicate process uses natural deposits of silica in rice hulls. The reason for this is that the rice plant biologically absorbs silica from the soil.

Demonstration plant in Freiberg / Germany provides evidence of purity.

For this purpose, the ash of rice hulls containing more than 90 % silica, is chemically decomposed in the silicate plant and processed into high-quality sodium and/or potassium industrial silicates and fertilizer products. Due to a natural resource base the bio-silicates have a CO_2 footprint that is about 70 % lower than produced in a conventional way.

> ›The exceptional purity and best usability of our bio-silicates is now confirmed by the three largest silicate users in the world.‹
>
> **Gerhard Bacher, General Manager of Pörner Grimma**

Purity confirmed by industrial customers

First, the process idea was verified by means of chemical decomposition on a laboratory scale. In 2016, Pörner invested in a commercial and already semi-industrial demonstration plant. Thus, the specialists in Grimma got sufficient quantities of product to be tested by essential industrial customers. In the last six months, the exceptional purity and best usability as well as the demand for such ›greenly‹ produced material have been confirmed by the three largest silicate processing companies in the world.

Upscaling: Know-how

When it came to upscaling, the first step was to examine how the process elements could be scaled up or upsized in accordance with affinity laws or whether alternative technical solutions would be useful. This happened in parallel to yield optimization and minimization of chemicals and utilities consumption.

Operational (uninterrupted continuous operation, energy efficiency, degree of automation, operability, environmental compatibility) and economic (cost-benefit ratio of all plant parts and systems, layout, delivery logistics, assembly) requirements had priority when upscaling the proprietary special equipment and all complementary equipment, systems and structures for different options.

Value-optimized selection and global procurement

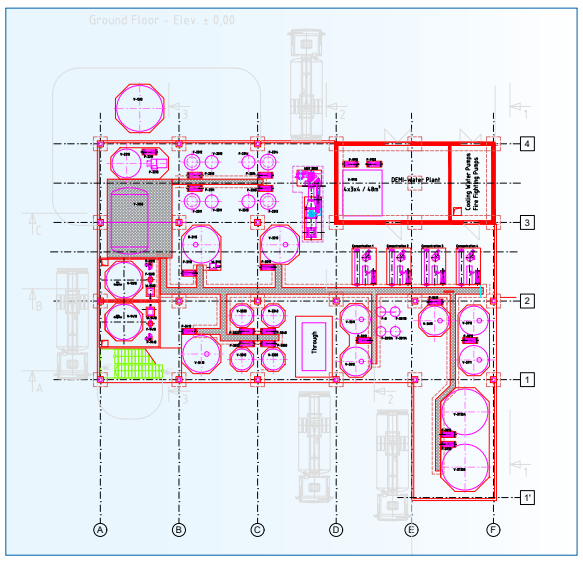
The large-scale system has now been holistically examined in terms of technical and ecological aspects as well as economically developed, designed and calculated in every detail.

In order to provide clients around the world with a cost-effective and durable plant adapted to local conditions for their invested capital, a distinction between high-tech components, globally procurable standard equipment and low-cost, locally-procured supplies and services has to be made.

Standardization for the rollout

Based on a medium-term market share of initially 5 % of the world production and referring to the different local availability of rice hulls, standard plant sizes of 7,500, 15,000 and 30,000 TPA have been pre-designed. This also requires options adapted to different countries and climates.

Here, the Pörner project developers benefit from the worldwide experience of more than 50 realized bitumen plants. Pörner is now ready for the worldwide rollout of the technology. There is a global interest in it – now it comes to the realization of the first plant, because *the proof of the pudding is in the eating*! ■



Layout plan of a 7,500 TPA bio-silicate plant

SILICATE

- The world market for silicates is around 6 million tons - and rising.
- Silicates can be found in over one hundred industrial products of daily use such as tires, detergents, paints, building materials and refined to modern electronics.
- Every year more than 600 million tons of rice are harvested and peeled worldwide, so there is an enormous amount of raw material available and furthermore an environmental problem is solved by recycling waste products.

With digital planning tools towards worldwide networking

Interview. Intelligent workflows across locations.

ANLAGENBAU 4.0
we create productivity

Interview with Thomas Hermann, Head of Piping, Pörner Vienna

Thomas Hermann, who has been part of the Pörner team for 31 years now, manages the department ›Layout and Piping Construction‹ . Within the Pörner Group he is responsible for the cross-location CAD system coordination. We are particularly interested in his view regarding the future of plant engineering.

EngTimes: Thomas, what has changed most in plant design over the last few years?

Hermann: Well, we have completely adapted the project work to the digital world. Thus, projects can be implemented in an even shorter time. In order to ensure the highest quality, we work with 3D CAD systems and networked database-based engineering tools. Customers are increasingly asking for intelligent systems that are compatible with their internal maintenance and documentation systems.

EngTimes: Are you looking forward to the ›plant of the future‹ ?

Hermann: Yes, it will be exciting. The future plants will be fully networked and serviceable from anywhere. Due to automation, the ordering of defective components as well as repairs during operation will then be automatic. For Pörner this means a potential of all-in orders in the future: That means we take over the project responsibility for the plant from the planning, over purchasing and assembly up to the documentation maintenance and continuous support over the entire lifetime of a plant.

EngTimes: Digitalization is a huge topic. How did you prepare your department for it?

Hermann: As part of our concept ›Anlagenbau 4.0‹, we began early to provide our programs through CITRIX. This makes it possible to access the planning data worldwide while working across locations. This avoids data redundancy right from the start. New database-centric systems connected via interfaces are part of our digital work progress.

EngTimes: Do you only see advantages regarding digitalization?

Hermann: Mainly, yes. Cross-site engineering with its intelligent systems, workflows and interfaces leads to a considerable increase in efficiency and quality in project execution. But plant engineering is highly complex. To hand over plant engineering projects of our size in the given time and budget to the customer, it takes more than just modern tools: Namely, engineers with a lot of experience and know-how! ■

Renewable jet fuel may transform aviation industry

Climate protection. EDL plans the world's first power-to-X plant to produce CO_2-neutral jet fuel from air for Rotterdam The Hague Innovation Airport.

BY DR. MICHAEL HAID

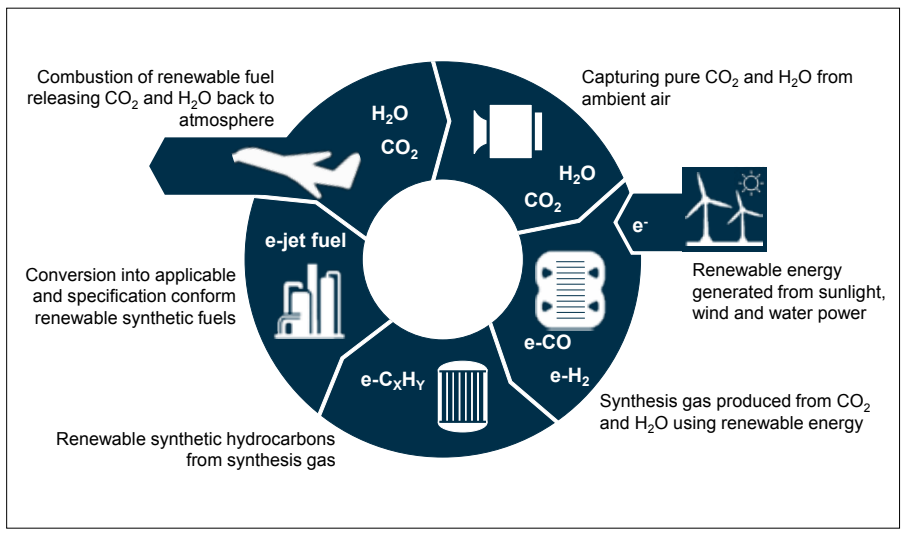
ROTTERDAM. The number of passengers in air traffic is steadily increasing. In the context of climate protection, electric mobility or hydrogen propulsion are hotly debated topics, but are not feasible for commercial air traffic in the medium term, especially for long-haul flights.

An environmentally friendly alternative are power-to-X technologies. Here, the X stands for various fuels or chemical products obtained by means of renewable electricity (power). In the case of air traffic, the X stands for kerosene which is also referred to as e-kerosene or ›blue‹ kerosene.

Compared to conventional kerosene, the ›blue‹ alternative has an almost neutral CO_2 balance, lower fuel consumption and lower particulate emissions. In addition, blue kerosene has the great advantage that nearly no contrails are left behind the aircraft. Current studies show that contrails contribute to global warming - possibly to the same extent as the CO_2 emitted by jetliners.

Pilot project for sustainable air traffic

Rotterdam The Hague Airport commissioned EDL to design a demonstration plant for the production of renewable kerosene from air, so that not only the automotive industry will benefit from climate-neutral alternatives. The plant will have a production capacity of 1,000 liters of blue kerosene per day.



Closed carbon cycle of renewable synthetic fuels

It will be designed as a fully self-contained modular system that can be used virtually anywhere where there is a connection to renewable power. The feedstock, CO_2 and H_2O, required for the production of blue kerosene is obtained directly from the ambient air. This means that CO_2 produced by subsequent combustion of blue kerosene is recovered from the ambient air and thus, a closed CO_2 cycle can be realized without net emissions.

From the recovered CO_2 and H_2O, synthesis gas (H_2 + CO) is produced in a co-electrolysis. The syngas is then converted into paraffinic hydrocarbons in a Fischer-Tropsch synthesis. Blue kerosene will finally be made by hydrocracking and fractionation. Another high-quality product obtained to a lesser extent is blue naphtha, which is sought-after as renewable feedstock for the chemical industry in the region, but can also be used as a renewable fuel component, as well as water in service or - if desired - in drinking water quality.

Thanks to a new, innovative integration of the process steps and the required utility systems, all material flows generated within the plant are used within the plant, so that there is no waste. Moreover, blue diesel can be produced either in combination with or instead of blue kerosene based on modified process conditions in hydrocracking and fractionation.

This allows the use of these plants even in remote areas, which are logistically accessible only with great effort, but have a high potential for the production of renewable power. On the one hand, this will ensure the regional supply of blue fuel and, on the other hand, make it possible to provide urgently needed water for local agriculture and the population.

Signing of the Cooperation Agreement on May 24, 2019 (from left to right: Dr. M. Haid, CEO EDL, Dr. D. Benshop, CEO Royal Shiphol Group, R. Louwerse, Director Rotterdam The Hague Airport)

Sustainable future prospects

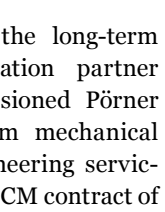
The pilot project also scrutinizes an upscaling of the demonstration plant to large-scale production capacities. And it also focuses on the integration into existing refineries and the use of CO_2 point sources.

This pilot project is a significant step towards a climate-neutral aviation industry. To this end, we as engineers are pleased to make a contribution to climate protection with our innovations. ■

Formalin plant for Metafrax in Gubakha

Chemicals. New engineering contract in Russia with home advantage thanks to the Moscow OOO Pörner Group Russia.

BY ALBERT TRAXLER



GUBAKHA. On April 3 2019, in Moscow, PJSC Metafrax and Norwegian company Dynea AS signed a contract for the construction of a 55 % formalin production plant in Gubakha / Russia.

In May 2019, the long-term Norwegian cooperation partner Dynea AS commissioned Pörner Grimma to perform mechanical and electrical engineering services. As part of the EPCM contract of Dynea AS, Pörner will prepare the 3D model and piping design, electrical design as well as the supply of the piping material, and MCC.

The formalin plant will be integrated into the paraformaldehyde production complex (paraform) with a nominal capacity of 180,000 TPA formalin (55 %) and 30,000 TPA paraform. The project is worth more than RUB 5.2 billion (about EUR 73 million) and is scheduled to be completed by the end of 2021.

The formalin produced in the plant serves, among other things, as raw material for the production of paraformaldehyde. Thus, Metafrax will be the only Russian producer of paraformaldehyde. With the commissioning of the plant, the nominal total annual production capacity of 55 % formalin increases to 450,000 TPA.

›The companies of the Metafrax Group in Russia and Austria consume more than 600,000 tons of methanol per year. As part of the company's development strategy, our internal demand for methanol will reach 800,000 TPA by 2030‹ , says Vladimir Daut, Director General of Metafrax OJSC.

Metafrax, Dynea and Pörner – successful long-term partners

Pörner's engineers realized many projects for Metafrax and therefore know the industrial area in Gubakha very well. These projects included among others a formalin plant (2006), a novolac and powder bakelite plant (Orekhovo-Zuyevo, 2009), a polyamide 6 plant (2009) and a hexamine plant (2011).

Pörner's successful partnership with Dynea AS also dates back many years. In the past 20 years Pörner has worked together with Dynea AS in 14 projects worldwide.

Gerhard Bacher, General Manager of Pörner Grimma, is looking forward to the new project for Metafrax: ›*Working with Dynea has always been functioning properly and on a friendly basis – the same goes for Metafrax. With our Moscow company OOO Pörner Group Russia we also have home advantage. Our Russian branch checks compliance with Russian norms and standards and carries out all translation work. All signs are pointing to a successful project!*‹

Pörner Grimma, situated near Leipzig / Germany, has specialized in formalin and its derivatives. Together with well-known European licensors and know-how partners, the EPCM contractor builds production plants with offsites, utilities systems and infrastructure for the formaldehyde product family. ■

The new formalin plant in Gubakha will be commissioned in the second half of 2021.

fasil™ by dynea

DYNEA AS AND FASIL

Dynea AS, with headquarters in Lillestrøm / Norway, is a leader in developing and providing high performance adhesives, surfacing solutions and formaldehyde process technology.

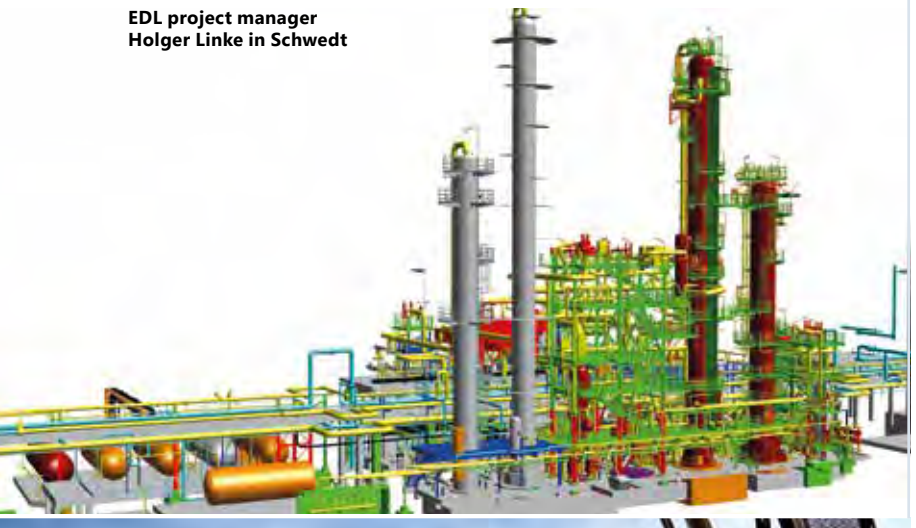
Over the last 60 years, Dynea AS has designed, constructed and commissioned more than 50 formaldehyde plants around the world. As part of an ambitious plan to get more projects done, Dynea AS now launched ›fasil‹ (formaldehyde silver), a new brand name for its existing formaldehyde silver technology, for the production of formalin. The process has been constantly improved to become the most preferred technical and economical formaldehyde process for its international customers.

Spring offensive

Focus on aromatics extraction plant

EDL project manager Holger Linke in Schwedt

SCHWEDT. Aromatics extraction plants are currently under close scrutiny in some refineries. On the one hand, many of the existing plants are technologically and physically worn, on the other hand, the demand for high-purity aromatics for the synthesis of petrochemical products is increasing.
PCK refinery also decided to retrofit the existing Arosolvan plant. In order to implement this plan, EDL was commissioned with the extended basic engineering, detail engineering, procurement services and construction supervision based on a PDP (Process Design Package) provided by EDL's technology partner TTC Labs.



View on the aromatics extraction plant during the revamp

Better energy efficiency and higher yields

Objectives of the project ›Aromatics Light‹ include replacement of the solvent used in the production of benzene and toluene as well as minimization of energy and utilities consumption. To achieve these goals, the previously used solvent N-methyl-2-pyrrolidone (NMP) will be replaced by the less toxic solvent tetraethylene glycol (TTEG). In addition, heat integration systems are implemented for energetic process optimization.

First project phase mastered on time

A first important step to realize the project was preparatory work already carried out in the shutdown ›Step2‹ in spring 2019.

For example, the column foundation for the new column was strengthened and anchor bolts were added, lifting lugs welded to three columns to be demolished in 2020, vessels and columns prepared for connection to the flare system, control groups and pipelines relocated for new equipment, and various tie-in points into the existing piping systems prepared. Work was completed successfully and on time on April 12, 2019.

Revamp during shutdown in 2020

The detail engineering is now almost accomplished, at the same time equipment deliveries to the customer have already started. Pre-dressing is already in progress for the first column, so that everything will be well prepared for a smooth revamp during the shutdown in April 2020. ■

THE 2019 REFINERY SHUTDOWN AT PCK IN FIGURES:

A total of 24 process plants were under scrutiny at PCK (repair, TÜV inspection, new equipment)

- **124** Mio. Euro invested
- **43** partner companies participated
- **1.200 t** of piping material, **250 t** valves, **100 t** screws installed
- **135** heat exchangers
- **Six** columns (**four** engineered and erected by EDL)
- **17** vessels

INTERNAL MATTERS

›REVAMPED by Pörner‹ - a concept for success

Over the last ten years, the Pörner Group has been able to accomplish more than 80 revamp projects for companies active in the refinery, petrochemical and chemical industry in strict accordance with time and budget requirements. ›REVAMPED by Pörner‹ has achieved a good reputation. But what exactly makes the difference for our customers?

With ›REVAMPED by Pörner‹ the Pörner Group offers a clearly defined package of services to modernize plants and bring them up to state of the art.

The Pörner engineers do this with regard to the future-proof, flexible operation of an existing plant over the next decades:

- based on customized processes and technologies, equipped with the best systems and components available on the world market
- for the production of modern products having the edge over those of competitors
- with the lowest possible energy and utility consumption
- equipped with features of modern environmental technology
- fully automated with monitoring and analytical functions.

›REVAMPED by Pörner‹ stands for a threefold optimization:

1. **Optimal engineering:** Pörner delivers all engineering services from a single source as a complete package for the customer.
2. **Optimal realization:** Based on an exactly structured scheduling Pörner ensures the shortest possible shutdown time in production.
3. **Optimal productivity:** The goal is a completely revamped and improved plant in which all production processes are perfectly geared to each other.

Together, let's create the ›Plant 4.0‹! ■

PCK

DANKSAGUNG

Beim Verbundstillstand 2019 haben wir gemeinsam viele Herausforderungen und Projekte gemeistert.
Wir sind am Ziel angekommen.
Unser Erfolg ist auch Ihr Erfolg.
Die PCK Raffinerie Schwedt/Oder bedankt sich bei Ihnen, der Firma

EDL Anlagenbau Gesellschaft mbH

für Ihre vorbildliche Qualitäts-, Termin- und Sicherheitsarbeit, Ihr Engagement und Ihre Einsatzbereitschaft sowie die gute partnerschaftliche Zusammenarbeit bei

STEP 2

PCK freut sich auf weitere erfolgreiche Projekte mit Ihnen als Partner.

Wulf Spitzley
Geschäftsführer

ppa. Thomas Schulze
Stillstandsleiter STEP2

PCK's appreciation of the services performed - in conjunction with the results in the crude oil 3 plant - is expressed in the certificate awarded

Shutdowns at PCK

Columns replaced in the crude oil 3 plant

SCHWEDT. Even the best equipment needs to be replaced after many years of operation and despite continuous maintenance. Therefore, in spring 2019, the shutdown ›Step2‹ at PCK refinery focused on the replacement of four columns in the crude oil 3 plant: two side strippers, the pre-column and the liquid gas column with two reboilers. EDL as a proven partner and revamp specialist was awarded by PCK the contract for detail engineering, preparatory work for the permitting procedure, procurement services, manufacturing inspections, expediting and quality inspections as well as construction supervision.

Eye-popping ›column caravan‹ on the way to PCK

After intensive engineering work, EDL's engineers reached a first milestone in October 2018. Column 3K-1 prefabricated in three sections and column 3K-4 prefabricated in two assembly parts were transported to PCK.

As in previous projects, detailed logistics concepts for the transport of special equipment were elaborated. Thus, the column parts were delivered by ship to the port of Schwedt from where they started their journey by heavy goods transport to the refinery. Streetlights, road signs and bollards had to be removed because the parts to be transported were neither small, nor light weights: The lower part of the three-part column has a length of 10 m, a diameter of 6.0 m and weighs 74 t. The middle section has a weight of 75 t. With 22 m, the top is the longest part and has a diameter of 4.5 m.

Extreme precision during ongoing operation

The big challenge in this revamp project was that in addition to the solid construction work and the manufacture production of new structural steelwork for control groups and transfer line, the assembly of columns 3K-1 and 3K-4 as well as their further completion with platforms, piping, electrical equipment and instrumentation, internals, etc. were to be done during ongoing plant operation.

In previous revamp projects at PCK, many assembly activities could already be carried out on the pre-assembly site, so that large pieces of equipment (in particular column parts and plant modules) had a high degree of pre-dressing and could be lifted into the existing structure with this prefabrication status. This approach led to significant time savings during the plant shutdown.

But where the installation work could usually be executed in parallel in the pre-shutdown – this time ›only‹ the two stripping columns 3K-3 and 3K-3.1 could be completed and the steel structure modules of 3K-4 be prefabricated on the pre-assembly site.

A large part of the work had to be done during the shutdown period in the plant area, step by step. This required even more precise scheduling as well as the on-time delivery of the necessary assembly materials. EDL's engineers mastered this challenge with innovative ideas, full commitment and great teamwork together with the customer and all partners.

And so, after only three weeks of intensive work during the shutdown, the acceptance certificate of mechanical completion was signed with the customer on April 14, 2019. PCK expressly appreciated the quality of the engineering as well as the preparation and coordination with all parties involved without whom the project would not have been accomplished on schedule in view of many parallel maintenance activities and other projects. ■

›The crude oil plant and in particular the pre-column have been operating extremely reliably since the successful start-up of this plant.‹

Holger Linke, EDL project manager

A structural steelwork module of the crude oil plant is lifted

The ›column caravan‹

New column K3 of the crude oil plant is being lifted

BITUROX®
BITUMEN OXIDATION TECHNOLOGY

BITUMEN OXIDATI

World market leader with Biturox®

Considering the global demand of high-performance roads bitumen is one of the most important construction materials nowadays. With the Biturox® bitumen oxidation technology designed by Pörner, the world market leader, a high-quality, homogenous product can be obtained out of 1,000 different, available crude oils.

Since 1978 Pörner has licensed more than 60 Biturox® plants worldwide. Due to the environmental directive IMO 2020 applicable as from next year onward, refiners' interest in the Biturox® technology increases since residues should be used to a greater extent. Four plants are currently under construction, four more are being planned and the number of interested parties is even higher.

WWW.BITUROX.COM

Interesting alternatives for specialty refineries

Many refineries turn towards the production of specialties (niche products). With the Biturox® process, high-quality bitumen is produced in a highly economic way, and tailor-made for the intended use: performance bitumen from lighter crude oils or special bitumen ('multigrade bitumen') as a high-performance binder intended for road construction or industrial bitumen intended for insulating and roof sheeting.

Flexible feedstock

Regarding the Biturox® process, in addition to purely physical vacuum distillation, mixtures of vacuum residue and other feedstock are optimized to standardized quality bitumen by controlled chemical conversion in the Biturox® reactor. The Biturox® technology enables refineries to have more flexibility in choosing a crude oil grade. Bitumen can be produced more cost-effectively and be marketed as a special product at a higher price.

The method

Good bitumen must have a balanced distribution of saturates, aromatics, resins and asphaltenes (SARA) contained in it.

›Biturox® multigrades‹ are created by ›composition control‹: First, several chemically different raw material components are ›composed‹ to form a defined feedstock. These will be processed in the Biturox® reactor by mild air oxidation under controlled processing conditions. This achieves the requested structural balance and the best possible molecular mass distribution.

The Biturox® reactor is the perfect tool for an effective oxidation: it works continuously, energy-efficient, is controllable as well as safe. The product obtained is homogenous and storage-stable.

Energy-efficient, environmental-friendly, low in maintenance

Heat recovery from the exothermic process minimizes energy consumption and is used to heat up the feedstock. About 80 % of the hydrocarbons contained in the exhaust gas are condensed and returned to the refinery.

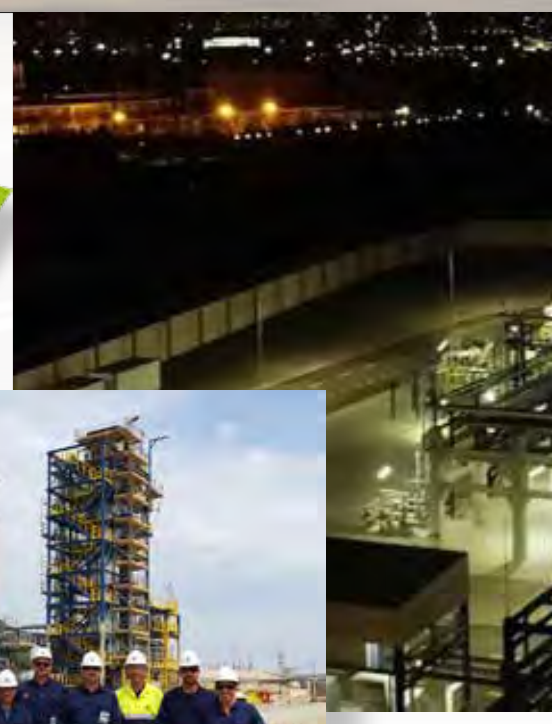
The energy from the exhaust gas combustion can be used for steam and power generation. The entire Biturox® process is highly automated with intelligent instrumentation and DCS. Long operating times and low maintenance are in line with the requirements of a modern refinery.

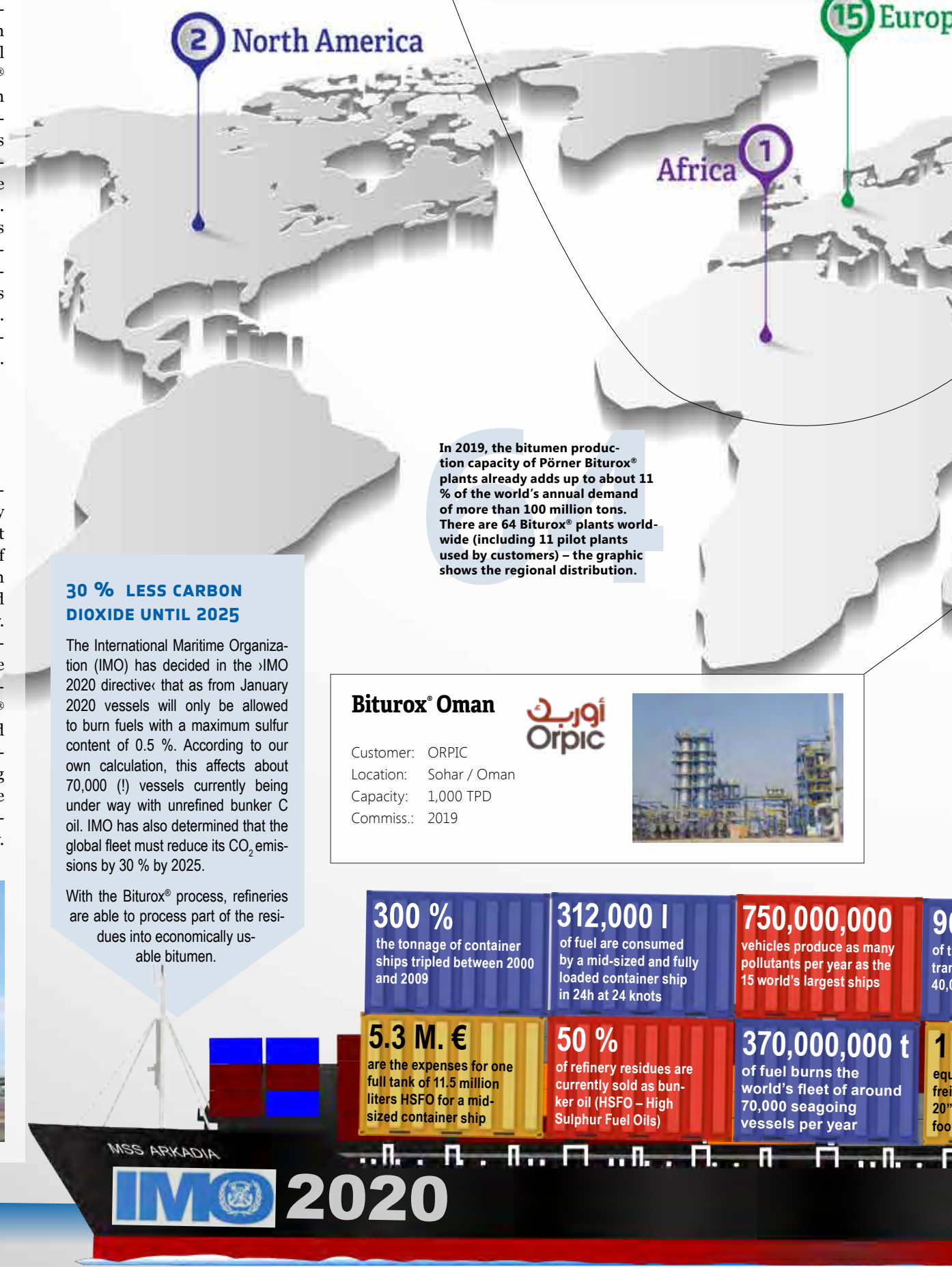

Biturox® Baku

Biturox® Baku

Customer: SOCAR - State Oil Co. of Azerbaijan Republic
Location: Baku / Azerbaijan
Capacity: 1,200 TPD
Commiss.: 2018

SOCAR





In 2019, the bitumen production capacity of Pörner Biturox® plants already adds up to about 11 % of the world's annual demand of more than 100 million tons. There are 64 Biturox® plants worldwide (including 11 pilot plants used by customers) – the graphic shows the regional distribution.

30 % LESS CARBON DIOXIDE UNTIL 2025

The International Maritime Organization (IMO) has decided in the ›IMO 2020 directive‹ that as from January 2020 vessels will only be allowed to burn fuels with a maximum sulfur content of 0.5 %. According to our own calculation, this affects about 70,000 (!) vessels currently being under way with unrefined bunker C oil. IMO has also determined that the global fleet must reduce its CO_2 emissions by 30 % by 2025.

With the Biturox® process, refineries are able to process part of the residues into economically usable bitumen.

Biturox® Oman

Customer: ORPIC
Location: Sohar / Oman
Capacity: 1,000 TPD
Commiss.: 2019

أورپك Orpic

ON TECHNOLOGY

Biturox® Lukoil

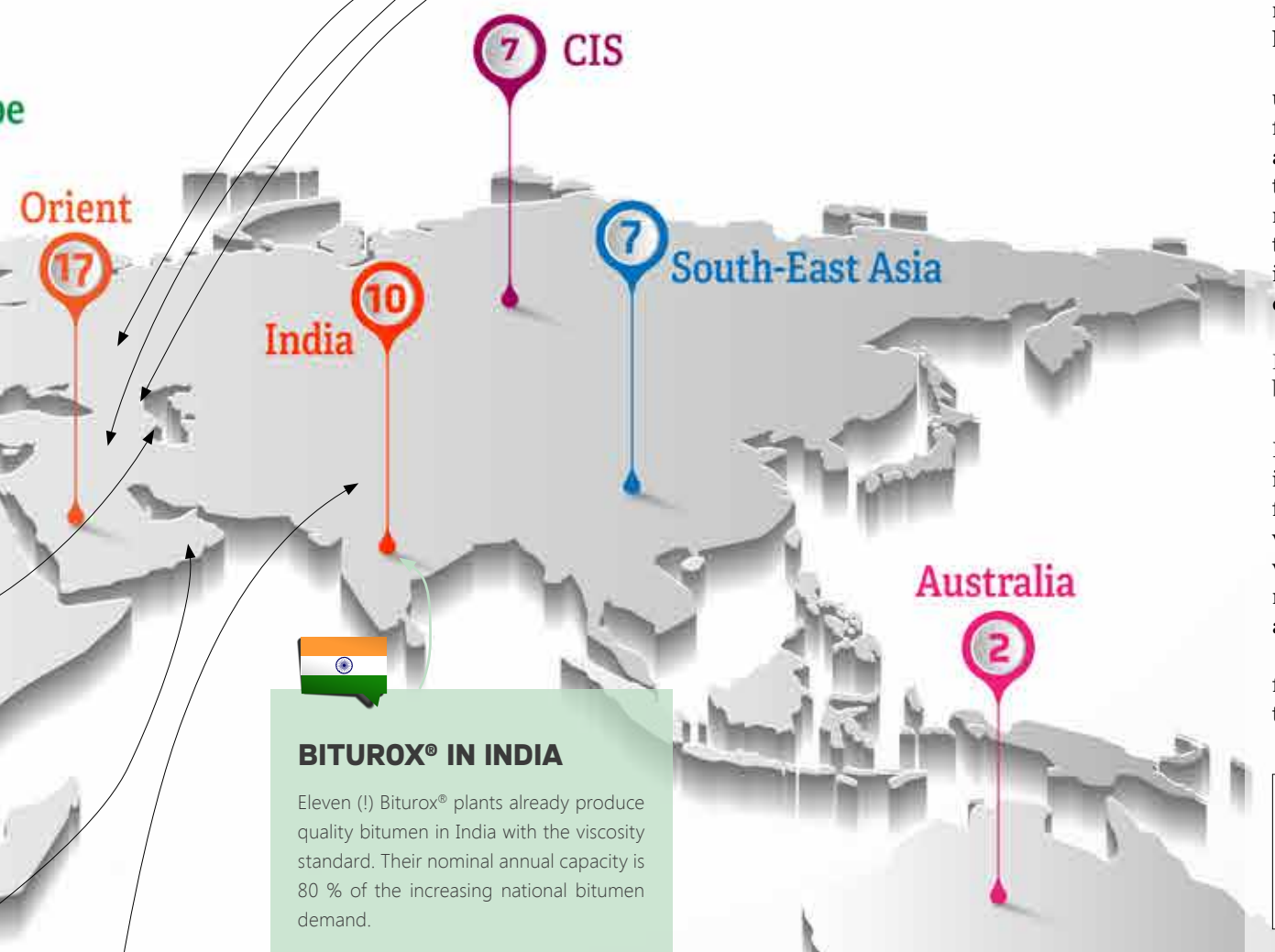
Customer: Lukoil
Location: Nizhninovgorod / Russia
Capacity: 1,650 TPD
Commiss.: scheduled for 2021

Biturox® Rania

Customer: Rania
Location: Kirkuk / Iraq
Capacity: 720 TPD
Commiss.: scheduled for 2021

Biturox® Grosny

Customer: ROSNEFT
Location: Grozny / Chechnya / Russia
Capacity: 350 TPD
Commiss.: scheduled for 2021

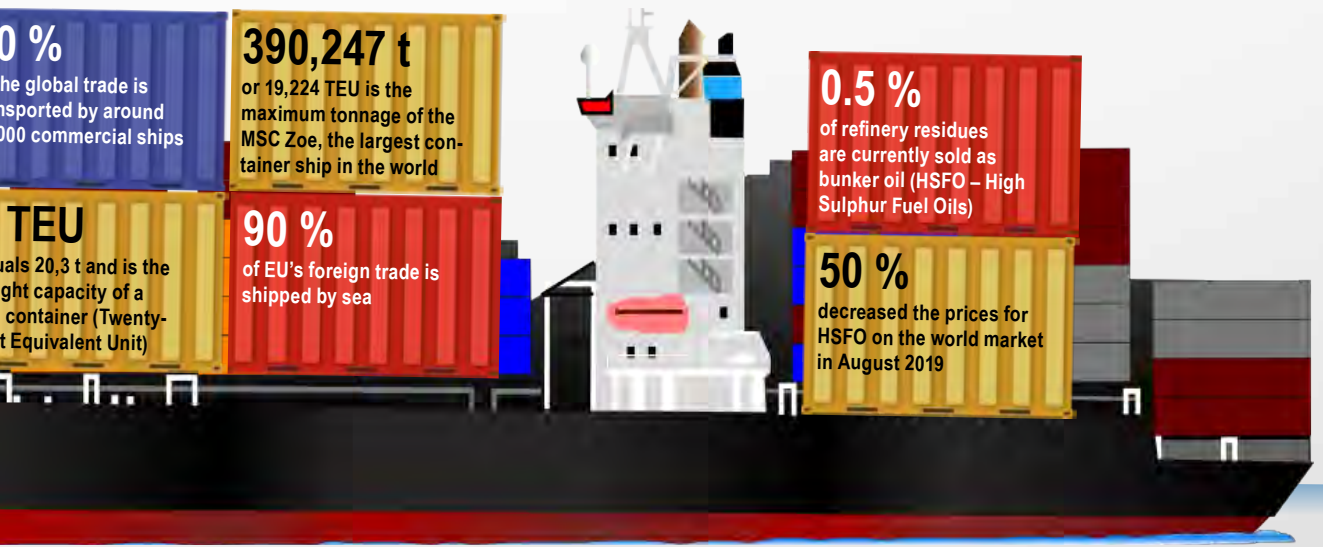


BITUROX® IN INDIA

Eleven (!) Biturox® plants already produce quality bitumen in India with the viscosity standard. Their nominal annual capacity is 80 % of the increasing national bitumen demand.

Biturox® Bathinda

Customer: HMEL (HPCL-Mittal Energy Ltd.)
Location: Bathinda / India
Capacity: 1,500 TPD
Commiss.: 2018



Bitumen in modern road construction

With its fascinating features, bitumen is nowadays the first choice when it comes to asphalt binders for road surfaces. It binds the solid additives such as sand or pebbles. It has to remain stable against segregation at high temperatures (summer). On the other hand, it should not tend to brittle fracture at low temperatures (winter).

Bitumen road surfaces are usually exposed to heavy traffic. Roads have to be repaired and renewed at regular intervals. Low-quality bitumen results in enormous costs for the economy. Typical damage is the formation of ruts and cracks due to material fatigue.

Best bitumen for best roads

For the best possible road quality, the focus is on the binder features of bitumen: this involves optimization of the viscosity behavior and other rheological parameters, such as stiffness and visco-elasticity.

This is reached in the refineries by the Biturox® bitumen oxidation process, which flattens the viscosity curve of the product.

Special bitumen produced with PEN INDEX above zero (normal standard bitumen is between minus one and zero) have improved thermal properties, are fatigue resistant in the cold and resistant to ruts at higher temperatures.

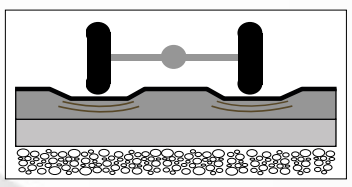
›The costs for asphalting can be reduced by up to 20 % with our special bitumen.‹

Wolfgang Heger, Head of Pörner Btumen Technologies

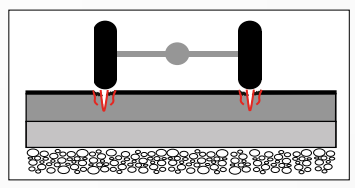
Better and more economical

The use of special bitumen allows road construction with lower layer thickness – and reduction of more than 25 % of binders and aggregates in the hotmix. As a result, the cost of asphalting is reduced by up to 20 % and the total road construction costs by more than 10 % less. Nevertheless, the roads built this way – depending on traffic load and climate – have a much longer durability.

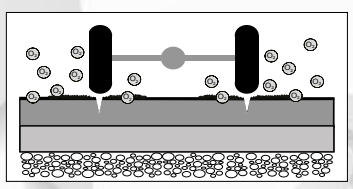
Especially on heavily frequented roads - such as city highways - the availability for dense traffic is maintained much longer, which results in a significant reduction of the overall costs.



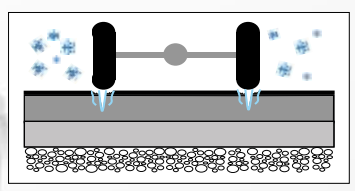
Too soft: erosion of the top layer under wheel tracks, at high temperature conditions (summer).



Too brittle: the elastic behavior fatigues from high traffic load.



Ageing: the mix gets brittle due to the effect of oxygen and chemical ageing.



Too cold: the road fatigues more at cold temperature conditions (winter).

Ground-breaking for betaine plant

Food industry. Long-standing partnership with AGRANA.

BY THOMAS OLBRICH

PISCHELSDORF. AGRANA Investment Corp. commissioned Pörner Vienna with engineering services for a crystalline betaine production plant. The official ground-breaking ceremony for the EUR 40 million project took place on April 9th, 2019.

Since 2015, AGRANA has been processing sugar beet molasses obtained in sugar production into liquid betaine. Due to broader application possibilities of crystalline betaine AGRANA decided to build such a production plant.

Thus, Tulln will become the world's third production site for the manufacture of natural high-quality crystalline betaine with a production capacity of 8,500 TPA. The project is implemented by AGRANA under a joint venture with The Amalgamated Sugar Company.

Well thought out from the very beginning

Pörner already supported AGRANA during the study phase in the selection of location, the development of the first plant concept and authority engineering. In addition, Pörner was entrusted with the civil/architectural engineering as well as electrical instrumentation and CSE.

Furthermore, Pörner is responsible for the packaging system, product tanks, shelf warehouses as well as various off-sites such as steam boilers, RTO (regenerative thermal oxidation) and cooling tower plant. Pörner is also responsible for construction supervision.

Completion of the project is scheduled for April 2020.

Pörner and AGRANA: A partnership for many years

In recent years, Pörner has been involved in numerous modernization projects and the construction of new plants at AGRANA.

As a general planner, Pörner built the bioethanol plant, the ship loading and unloading station, a screening plant and the new administration building in Pischelsdorf. In Gmünd Pörner was responsible for the expansion of the production of children's food as well as the conversion of the wet derivatives plant for potato starch.

In Tulln, Pörner performed engineering and construction supervision services for the molasses desugaring plant. ■

> ›We look forward to assist AGRANA again with our knowledge and experience when implementing Europe's first process plant of this kind. This is further proof of their trust in our engineering competences.‹
>
> **Thomas Olbrich, Pörner's project manager**

Ground-breaking ceremony for EUR 40 million betaine plant in Tulln. In the picture representatives from politics and economy with Martin Doppler (AGRANA Zucker General Manager, 1.f.l.), Johann Marihart (AGRANA Director General, 4.f.l.) und John McCreedy (AMALGAMATED Sugar President, 6.f.l.)

WHAT IS BETAINE?

Betaine is a natural component of sugar beet molasses. Its osmoregulatory properties support the water balance of the cells, boost the fat processing of the liver and the reduction of the amino acid homocysteine. Betaine is used as a dietary supplement for sports nutrition and animal feed, but also in the cosmetics industry.

For safe tanks in Ploiesti

Refinery. Petrom commissions Pörner Romania with inspection of tanks.

BY MICHAEL VOLKMANN

PLOIESTI. OMV Petrom, part of OMV Group, plans to strategically strengthen the Ploiesti refinery and invest in a variety of new projects and ideas for the long term. Pörner Romania was commissioned with the evaluation of 18 gasoline product tanks within the ›Tank Farm Optimization Project‹ .

The contract includes the evaluation of these tanks using 3D laser scanning. By means of a multitude of measurements, the geometry (roundness and verticality), wall thickness, material condition and tightness of the tanks are recorded.

Ecofriendly thanks to state-of-the-art technologies

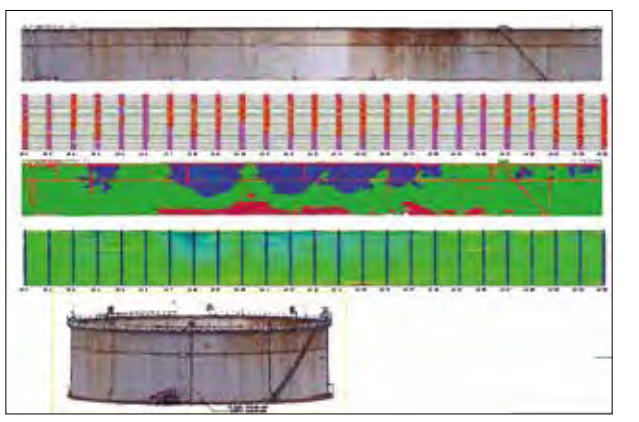
Depending on the current condition, it is decided to revitalize, renew or dismantle the tank. In addition, the environment is considered in project development. Thus, if necessary, additional retaining walls or double-walled tanks are built to prevent any leakages seep into the ground.

Determining the necessary data requires athletic skills. Despite state-of-the-art technologies, the wall thickness measurement can only be done directly on the outer wall of the tank. Therefore, climbers with appropriate equipment and training are hired to operate on the wall thickness gauges at a height of 14 meters.

As part of the project, the respective pipelines, pumps, valves and foundations are being evaluated at the same time. As an EPCM engineering service provider, Pörner has been providing all engineering disciplines (civil, piping, electrical and instrumentation, process, mechanical & equipment, procurement, etc.) from a single source since 2006.

The new IT equipment for interactive meetings and video conferences has already proven to be beneficial. The office was completely modernized in 2019 and offers a pleasant and modern working atmosphere for some 30 employees. ■

Point cloud of a 3D laser scan (all components such as tanks, pipe bridges, buildings etc. are shown)



Complete laser scan of a tank including jacket processing with color representation of the deformation

INTERNAL MATTERS

BY THOMAS ECKL, RENĒ PELZ

Quality and safety

VIENNA, LEIPZIG. Quality, safety, health and environmental protection are of high importance within the Pörner Group. The same applies to the protection of company and personal data in the digital age. At Pörner, a quality, safety, health and environmental management system certified acc. to EN ISO 9001 and SCC** is consistently pursued and continuously improved.

> ›Thinking and acting based on risk analyzes are the key factors for project success.‹
>
> **René Pelz, Head of Q/SHE management at EDL**

Business process management

In addition to innovative solutions in terms of technology and service, the business processes are always rated according to key figures and constantly made more effective and efficient. In the course of process management, all employees think and act along the entire business process chain on the basis of risks as required by the Q/SHE-MGMT system. Thus, ›Vision Zero‹ is persistently pursued as part of project execution.

›Zero Accident‹ – the safety philosophy on construction sites

Safety has top priority in the project execution phase. Safety risks on construction sites are identified, evaluated and subsequently avoided or mitigated as a result of specific safety instructions. That is why a safety and health protection plan is created every time a construction site is set up.

Furthermore, all companies of the Pörner Group have been certified to EN ISO 9001 and SCC** since 1995. ■

> ›We have deeply internalized the ›Zero Accident‹ credo.‹
>
> **Tom Eckl, Safety advisor at Pörner Vienna**

Electrical, I&CS and the Digital Twin

Andreas Eder, a representative of the 'Next Generation', has been head of the electrical and I&CS department at Pörner Vienna since 2018. We talked to him about the future of electrical and I&CS between the poles of Digital Twin and the Internet of Things in plant engineering.

Interview with Andreas Eder, head of electrical and I&CS in Vienna

EngTimes: Andreas, how do you think the plant of the future will look like?

Eder: Certainly, there is a trend towards complete digitalization of the plant. The so-called Digital Twin plays an essential role in this context. In the future, all processes and their effects on functionality and quality of a plant can be simulated. So, exceptional or unsafe conditions can be better identified and reduced.

EngTimes: The signs are therefore pointing to digitalization. Are there any other trends?

Eder: Indeed. For example, the ›Industrial Internet of Things‹ – IIoT for short. This can improve operational efficiency, cost reductions in production, faster processes and new business models – e.g. because of flexible production techniques and intelligent networking of systems.

Sensors and the data collected by them play a central role. They provide a comprehensive database for automation and self-learning machines.

IIoT means that smart machines can work faster, more efficiently, more accurately and more cost-effectively in many areas than humans. This significantly reduces the burden on the operating staff and the plant's comprehensive big data can be used to generate important information about the process control or the condition of the plant with suitable processing analyzes – for example ›predictive maintenance‹ or energy and utility optimization.

EngTimes: What changes will there be in the field of electrical and I&CS over the next 10 to 20 years?

Eder: Automation will progress more and more in the coming years. The fast-moving nature and the ever increasing time and cost pressure remain a problem. Therefore, I see my task in keeping our team up to date with the latest technological innovation so that we are qualified to advise our clients and implement potential resources in our projects.

EngTimes: What can your team offer to our customers between these poles?

Eder: Since year one, Pörner has scored with the complete range of all engineering disciplines and an enormous number of reference projects in different branches of industry. In our team we have experts who are able to think outside the box and to rationally implement useful innovations. If we need support from outside, then we cooperate with good and proven partners.

Hence we can provide our customers with competent and vendor-neutral support, especially in sensitive areas. Our main goal is a tailor-made project that offers a decisive competitive advantage for the plant operator: the technically and economically optimal solution at a reasonable price.

EngTimes: How do you want to meet the trends of digitalization?

Eder: We set our focus on decentralization and customer proximity. We stay in direct contact with the specialist teams at the client's locations using (software)-technical possibilities and thus keep the collective know-how up-to-date.

We have already been using modern work tools, such as the database-based planning tool Comos, Hexagon SPI or Hexagon S3D.

Another advantage regarding Pörner is our corporate culture with a flat organization structure. Our clients benefit from this ›open door‹ policy, which makes a big difference to large corporations, because we are able to react in a flexible, agile manner and faster to customer requests and market changes. ■

Lubricants for South Korea

Lube Oil Blending. Reliable supply and a satisfied customer.

BY MATTHIAS HARING

SEOUL. In late 2018, EDL was commissioned by the South Korean GS Caltex Corporation to extend the existing metering, dosing and blending systems for lubricant production. As early as 2015 EDL supplied a lube oil blending plant for adding additives to South Korea. With the new extension the flexibility of the plant could be improved and the capacity more than doubled.

On-time dispatch of 2.5 t ›live weight‹

The project which was implemented in time-proven cooperation with the Korean engineering company INWOO Corporation was challenging mainly in terms of deadlines. Only 5 months were allowed to elapse between order placement and delivery of equipment – a big challenge for EDL's team and its partners.

Thanks to the similarity between the new system and the system delivered in 2015 at least the planning effort could be reduced. Nevertheless 5 years of technical development of components to be installed had to be implemented. 100 % ›cloning‹ was therefore not possible. And although the plant extension was not that big, projectwise it did not rank behind large-scale plants.

By professional acting on all levels it was possible to perform the final assembly and programming in half the time initially planned. After the Factory Acceptance Test (FAT) had been completed successfully in April this year, 2.5 t ›live weight‹ could – duly cleared and packed - be shipped by plane from the Frankfurt airport to Seoul.

Simultaneous Metering Blender (SMB), delivered by EDL: in the background the SMB of 2015, the 2019 extension by 4 lines in the front

Successful commissioning in South Korea

Following the delivery EDL was awarded the contract for supervision of the on-site installation and for commissioning support in South Korea.

Despite some national public holidays in June, such as the Remembrance Day in South Korea or Whitsuntide in Europe, commissioning of the plant could be ensured in due time. Based on their experience and routine our partners from Franconia and Leipzig managed to fulfil the set tasks to the utmost satisfaction of the customer. ■

GS CALTEX CORP.

operates a refinery in South Korea that covers more than one third of the Korean oil demand and exports more than 50 % of its products. Since 2006 the company has been producing base oils and lubricants – starting with approx. 2,500 m³/d base oils they produce approx. 5,000 m³/d today as well as 1,500 m³/d lubricants and 8,000 t/a grease. These lubricants are used among others as engine, hydraulic, industrial gear or cutting oils in the industry. GS Caltex is one of the largest producers of lubricants worldwide and market leader in the Far Eastern region.

Supply contract for Bangladesh

Fertilizer production. New order for ›Advanced Energies‹ department in Linz.

BY CHRISTIAN GEYRHOFER

ASHUGANJ. Bangladesh has one of the highest population densities worldwide and has been prospering for several years. Besides the booming clothing industry, agriculture is also of high economic importance. Around 70 % of the land area is used for agricultural purposes by about 40 % of the residents.

Therefore, the fertilizer production is vital. In Bangladesh there are a total of six fertilizer factories. One is going to be modernized, and the ›Advanced Energies‹ department, founded at Pörner Linz in 2018, was awarded a contract.

Pörner succeeded in being listed as a trustful supplier in Bangladesh. For this purpose, regional as well as state ministries and finally the supervisory board of the parent company of all fertilizer plants had to be convinced. Since all fertilizer plants are state-owned, this was a crucial step for following orders in this high-growth country.

This revamp is a lump sum turnkey project that includes on-site delivery, project management and site supervision. The customer Ashuganj Fertilizer & Chemical Company Limited requires the replacement of key components. After a delivery time of 12 months, a local partner will carry out the installation.

Completion and commissioning will take place in 2020 under Pörner supervision. ■

Contract signed between Pörner (with Christian Geyrhofer, l.) and AFCCL in Ashuganj / Bangladesh in September 2019

CORPORATE LIFE

BY LYDIA BRANDTNER

Long live the sport!

Sport represents motivation, joie de vivre, dynamics – just like Pörner. What sports and Pörner Group have in common is team spirit, will, fairness and passion. For several years now, our colleagues have been participating in sports competitions from time to time and this year there were many athletic highlights, too.

We congratulate all sports enthusiasts of the Pörner Group on their achievements! Thank you for carrying the names Pörner and EDL in this way out into the world.

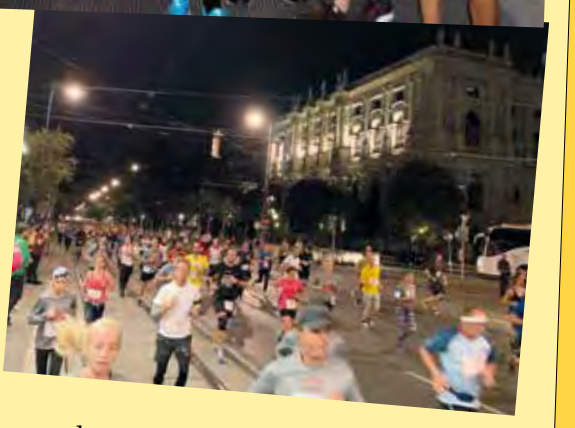
Totally committed at more than 30 degrees Celsius
On June 19th, 14 runners of EDL started at Leipziger Firmenlauf, which set a new record with approx. 19,000 participants from more than one thousand companies. In midsummer temperatures, the fastest of them, René Pelz, finished the 5 km run after 20:53. Good job! After great efforts, the colleagues took some refreshment in form of cold bear and a hearty buffet.

Off-road through the desert in a R4
Almost 2,700 participants and 1,400 Renault 4 started in the south of France on February 21st and embarked on a 21-day adventure with destination Marrakech / Morocco. Pörner's piping specialist Fabio Forte and his friend Erwin Hofbauer covered 9,000 km of breathtaking paths and desert tracks. After all these exertions, the team was more than happy about the 1st place in the category ›European‹ .

Kart race with screeching tires
The tires were screeching in the EDL Kart Cup race on July 5th. The participants fought for each top placement. In the end, each of the 16 drivers took home a prize and a souvenir left to the pelvic bone in form of an individually shaped bruise.
The top 3 received trophies and medals and awards sponsored by the management.

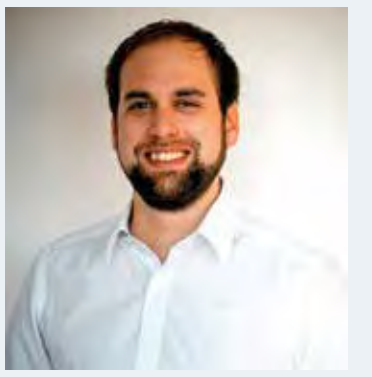
To the (volley-) ball!
Another sports event was the volleyball tournament 'modis summerbash 2019'. With full physical commitment, the EDL team competed in the Jahrhunderthalle in Spergau on September 21st. Although the team did not achieve a podium result this time, everyone had a great time. In the end, participation is crucial!

Vienna Night Run: Run, and save lifes!
In the best possible weather conditions, the 12-headed Pörner team raced 5 km around the Vienna Ringstrasse for a good cause. On September 24th over 20,000 runners took part, giving 1,300 people their eyesight back. Despite some obstacles in form of baby carriages, our colleagues in night blue Pörner T-shirts came home unscathed, out of breath, but very happy.



The universal process engineers in Vienna - with bitumen in veins

We talked with Dipl. Ing. Mark Seper, the new head of the process engineering department in Vienna. He follows Dipl.-Ing. Jana Foltyn who had run and developed the Vienna Competence Center for over 20 years.



Interview with Mark Seper, designated head of the process engineering department at Pörner Vienna

EngTimes: Mark, you have been working with Pörner since 2011. Being 36 years old, you belong to the ›NextGen‹ that will lead our company to a prosperous future in the following years. You have worked on 15 Biturox® projects and have been involved in the continuous advancement of the technology. What is the current trend in process engineering?
Seper: Biturox® is a good example: Increased environmental requirements call for new concepts of waste gas treatment, which currently consists of incineration, waste heat recovery and desulfurization, to be more efficient. Utilization of waste heat to generate electricity is now particularly provided as an alternative to pure steam or hot oil production.
EngTimes: What other requirements do refineries define?
Seper: Refineries have to permanently increase their total yield. As a result, the bitumen feedstock has changed: it is much more viscous due to greater separation of oil fractions from crude oil. At the same time, efforts are being made to utilize refinery by-products in bitumen production to improve profitability. It is also required to use substances derived from ›non-bitumen-grade‹ crude oils - all this with ever-increasing demands on product quality.
EngTimes: How do you manage to meet these demands?
Seper: Biturox® is a very flexible process, which allows the processing of various applications while delivering the highest quality. In order to achieve the desired bitumen qualities based on the existing feedstock we test them in advance in our pilot plant in Schwechat / Austria. This is how the customer gets certainty. Because bitumen is a complex mixture of substances whose properties cannot be determined and optimized by simulation, but only by practical pilot and laboratory tests.
EngTimes: Does Pörner continue to invest in bitumen application technology?
Seper: We are currently developing the new pilot plant B2RX 2020 to increase the number of blow tests from 2 to 4 per week. In the new concept, the main reactor will be extended by another smaller one. This increases flexibility in the test runs - without limiting the available quantities. With state-of-the-art measuring technology and computer-aided data recording. In accordance with our motto ›Anlagenbau 4.0‹ , Pörner can develop even more economical and better bitumen for its customers worldwide.
EngTimes: What are the biggest challenges for the Vienna process engineering department in the next years?
Seper: In addition to our specialty, bitumen, we prepare the process engineering of all Pörner projects: that means being creative when it comes to solving production, plant or control tasks.
Our expertise is required to optimize process plants in the petrochemical and chemical industries. There is a need for it almost everywhere. ■

The Biturox®-laboratory with pilot plant in Schwechat: More than 300 pilot tests performed and analysis results of approx. 800 feedstocks and products from all over the world are available to customers

Manager meeting and EDL company outing

Team building. Pörner Group meeting and excursion to the Bitterfeld-Wolfen Chemical Park.

BY ULRIKE FISCHER

LEIPZIG. On September 5th and 6th, the traditional autumn meeting of the Pörner location managers took place at EDL in Leipzig / Germany.

The presentations of the companies and locations showed the currently very pleasing development of the Pörner Group. In addition, there was enough time for discussions about internal cooperation and resource pooling for the benefit of our customers.

The convivial part did not come off badly either. Colleagues from Austria, Germany, Romania, Ukraine and Russia went on a journey with the EDL staff after having finished their work. This time to the neighboring state of Saxony-Anhalt.

The regular meetings of the Pörner location managers have proven themselves for many years

Aspirin and AgfaColor - production then and now

Everyone knows aspirin. But how are the pills made? The colleagues learned this and much more during a guided tour through Bayer Bitterfeld GmbH in the Bitterfeld-Wolfen Chemical Park.

Then they went to the cradle of the first color film in the world - to Wolfen. In 1936 the production of the AgfaColor film started there - once the second largest film factory in the world. Today many of us cannot imagine under what conditions people had to work: 8 hours in the dark, at 7 ° C, high noise levels and chemical vapor! Good that this piece of industrial history is preserved for posterity.

Good mood was also prevailing in the evening with live lounge music and interesting discussions. Many thanks to the EDL management for the fantatstic company outing. ■

Pörner Linz: Expansion under new management

Succession. Know-how & competence in a row.

BY PETER SCHLOSSNIKEL

LINZ. In the industrial center of Upper Austria, the Pörner location in Linz has already been long-established as an engineering partner of the regional industry.

Farewell to Eugen Gotter after 17 years

According to a quote by Salvador Dali: ›Parting is the birth of memory‹ we look back on 17 successful years of Eugen Gotter as location manager of Pörner Linz.

In the bright open space office near the banks of the Danube, numerous projects were realized under his guidance - for large companies as well as medium-sized production companies in the chemical and steel industry, plastics and color production and in bitumen processing as well as power engineering. For their work the engineers in Linz use E3D/PDMS as a proven 3D planning tool.

On July 1st, 2019 Eugen Gotter handed over the management of the location to Markus Obermayr, also from Linz.

Farewell to the old location manager in Linz: Eugen Gotter (r.) hands over to Markus Obermayr

The Linz office on the banks of the Danube offers over 30 colleagues best working conditions.

Two decades of expertise

Over more than two decades, Pörner employee Markus Obermayr became a specialist in project execution who masters every challenge with competence and experience.

One of his highlights as project manager was the general planning including procurement and assembly of the catalyst production plant in Qatar. As first of its kind, the construction of this plant was a challenge that was successfully mastered in close cooperation with the customer. The engineering and procurement of equipment with an investment of a two-digit million amount were completed on time within just ten months.

The location Linz and its promising plans

As location manager, Markus Obermayr plans to continuously deepen its employee's know-how and competence and to foster their team spirit. In the near future, it is planned to recruit new employees.

Markus Obermayr with his extensive, practical and professional knowledge in the areas of chemical plant construction, steam power plants and solid matter manipulation, and his team are available to our customers as contact person – full of zest for action.

We thank Eugen Gotter for his tireless dedication as location manager of Pörner Linz and we wish Markus Obermayr good luck for his new tasks and upcoming projects. ■

Growth in Burghausen

Locations. New office, new head, new projects.

BY GERHARD BACHER

BURGHAUSEN. Around EUR 9 billion are being generated at the industrial location in Burghausen, Upper Bavarian. In order to support clients such as OMV and Borealis directly on site, Pörner opened another office in Burghausen in January 2018 and was able to establish itself as an engineering partner for the southern German region with high-quality engineering services.

Initially accommodated in a container on the factory's premises, the newly acquired office in July this year offers Pörner employees 400 m² of state-of-the-art digital equipment in a pleasant ambience.

From electrical and I&CS engineer to head of office

On July 1st, 2019, Daniel Meir-Huber took over the management of the Pörner office in Burghausen.

Thirteen years ago, he started as an electrical and I&CS engineer at Pörner Linz, where he acquired the know-how to handle overall projects. Meir-Huber, who is a team player, is a competent contact person for his employees as well as the clients on site.

Engineering projects for the regional industry

Last year, the Pörner engineers in Burghausen conducted a large number of feasibility studies for industrial companies in Burghausen as basis for their investment decisions. The team was also able to demonstrate its expertise in project execution in two projects that were finalized during the shutdown of the Borealis: replacing the EOL extruder including the heat exchanger and integrating the dosing of the co-catalyst into the system.

Both projects were carried out in close cooperation with Pörner Grimma as well as Vienna, with the Burghausen team providing on-site coordination.

›In the near future we have planned major projects for our key customers, including OMV's petrochemistry project. These will also be projects that will be realized efficiently and on time‹ , announces Daniel Meir-Huber regarding the upcoming months. ■

New head of a dynamic team in Burghausen: Daniel Meir-Huber

The new office at Soldatenmais in Haiming offers employees and customers plenty of space on 400 m²

View on the Burghausen refinery

Professional project execution makes the difference

Like competition dancing, the partners must be able to rely on each other without compromise in order to achieve the best possible result - just as in plant engineering.

Preparation sets the course

An investor plans a new project. For the first study, a partner is sought - often from the field of process engineering. A feasibility study for the entire plant is waived in many cases. But the project does not only consist of process technology, and so the following questions arise: Can the chosen partner also develop a complete plant concept? Can he evaluate supplier-specific equipment? Does he have layout competence and the corresponding know-how to efficiently carry out revamps in existing plants? Does he consider the often crucial construction engineering, e.g. when working in existing facilities? Can he determine the costs of the plant completely and realistically (e.g. bulk materials, civil work, installation)? Does he have experience in scheduling complex plant construction projects?

We often experience that customers provide us with basic engineering as the basis for detail engineering, which as a plant concept is incomplete or incorrect. A few examples:

- if in the layout plan the heaviest, largest equipment is arranged in the middle of the plant - with no chance of reasonable assembly and lifting into position;
- if accessibility, operability and maintenance were to a minor degree taken into account or
- if constructional conditions such as underground conditions were simply ignored or
- if installation sequences in revamp projects were not considered at all.

Time and efforts required to put things right should not be underestimated and are usually associated with considerable additional costs.

Omissions in this project development phase are punished - they only come to light during detail engineering or construction and assembly, then usually with the consequence that the budget for the plant is exceeded and / or the plant cannot be put into operation for months. This costs a pretty penny.

›Plan the Planning‹: The ›Anlagenbau 4.0‹ conceptual design

In the new millennium thorough conceptual design became widespread among Pörner/EDL customers. Based on the process we plan the layout of the plant, the level of technical equipment and all equipment items and systems including their automation. Different options or the phase-wise expansion are examined, all planning, procurement and logistics as well as revamp or construction measures and installations (particularly crucial when it comes to revamps) are prepared. Safety and environmental compatibility are already integrated in this phase and authority requirements are taken into account.

We closely cooperate with the customer. Together, the optimal economic solution will be evaluated and decided on based on the developed principles.

And perfectly realized: Project management

What is the use of saving a few hundred thousand euros on a project investment of 20 million euros, if incomplete and inadequate planning prices up the plant by 15 %, and the plant is not optimally equipped from the technical point of view? Not all investors realize how much money they may lose and to what extent worse productivity and excessive operating costs may put a strain on the budgets.

We at Pörner and EDL therefore recommend an engineering contract including procurement service (EPCM) for larger projects. By managing, planning and executing the entire work together with the customer – based on the experience of our 500 engineers and our holistic working methodology - we can achieve many synergies and a better overall result.

Process plant engineering is complex: All engineering disciplines, many suppliers and contractors have to be coordinated. It is counterproductive to split planning services into pieces or to award the facility completely to executing companies with little engineering expertise.

We create a clear project structure and divide the work into project phases with well-founded, plausible scheduling. The entire project is managed, steered and coordinated by a project team of experienced engineers. The project phases are prepared by all disciplines consistently. Completely independently from any supply interests, the most suitable, most economical components and systems are planned, selected and procured.

With an engineering contract, the customer can make changes and improvements that are required during the project relatively inexpensively and without friction, without risking conflicts with executing companies due to excessive demands.

Anyone who has realized as many plants as Pörner in different industries and countries can decisively design and optimize a complex project. This works best if the experts of all disciplines can develop together optimal solutions going beyond their own discipline. When splitting the engineering work, such a synergistic optimization simply does not take place.

›With a professional, the customer knows investment costs, the optimal output, construction time as well as the return on investment for his plant from the very beginning and can trust in a professional realization.‹

Cost / benefit

Today there is extreme cost pressure in all areas. Nevertheless, savings should not be at any price, especially regarding engineering and project execution. Smart engineering service is cheap in relation to the cost of equipment and installation.

Good technological solutions, comprehensive project management and the value-optimized selection of equipment save several times the amount of work compared to plants that are not optimally designed and over-priced. But even the resulting sub-optimal operating and production conditions over years and decades should not be underestimated.

Pörner and EDL as plant designers know how to plan and execute complete plant projects in order to achieve the optimum and, as references show, to the satisfaction of more and more important industrial customers. ■

›Famous last sentences‹ (before failure)

›He is an engineer - he will be able to design a process plant ...‹
The fact is that process plant engineering can not be taught at university. And a great number of experienced experts is required to handle tens of millions of euros.

›We have no time for a feasibility study - we have to build the plant immediately‹
Except for very simple projects, interface chaos is preprogrammed at high cost.

›We have beaten the planner by 50 % ...‹
The performance can only match the budget. Dispute over additional claims is safe.

›Let's place the order with a low-cost installation company - they'll do it.‹
Risk of obtaining a mediocre result at a relatively high price if the company does not have process plant engineering expertise.

›It is inevitable that process plants are always completed late by months, and with the budget increased by 15% ‹ - statement of a manager of the German chemical industry in a specialist magazine
Revamps are performed by Pörner so that in the few weeks of the shutdown the plant can precisely be installed or refurbished: 800 men at work ...

HISTORY BY BARBARA OPITZ

Austria and Saxony celebrate 300th wedding anniversary

Pörner and EDL: Strong alliance partners from Austria and Saxony.

VIENNA/LEIPZIG. 300 years ago, Joseph I., Emperor of the Holy Roman Empire, and Augustus the Strong, Elector of Saxony, were looking for a strong ally. So the two rulers made plans for the liaison of their descendants. This year we celebrate the 300th wedding anniversary of electoral prince of Saxony Friedrich August II. and the Austrian Archduchess Maria Josepha.

It was the wedding of the century with pomp and circumstance. The festival of the four elements was celebrated in the newly built Dresdner Zwinger. It was an extravagant celebration to show the Saxon wealth. The festivities lasted a whole month. The couple was very fond of each other, and was blessed with 15 children.

Continental interaction across borders

Back to the 21st century: We also celebrate a Saxon-Austrian partnership. In 2003, the Austrian Pörner Ingenieurgesellschaft solicited for the Saxon EDL Anlagenbau Gesellschaft and from that time onward it has been Pörner's largest subsidiary.

Numerous projects were planned together and brought to a happy ending. Especially in larger projects with high process-related requirements the synergies within the Pörner Group come into play. Digital networking and smart software enable ›unlimited‹ cooperation of all specialists across borders.

On that note, cheers to both ›couples‹! The one for the anniversary, the other for their further ›married life‹. May the collaborative cooperation bring great project success for our customers in the following years. ■

For more information, follow the link below:

WWW.TRAUMHOCHZEIT1719.DE