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AT HOME ACROSS THE GLOBE

www.cac-chem.de

1811

Foundation of a machine manufacture by Johann Samuel Schwalbe

1873

Conversion into Machine Factory Germania AG

1964

Foundation of Plant Construction Section in the company Germania

1970

Established as the Directorate of Plant Engineering within the combine CLG

1990

Foundation of Lurgi Anlagenbau Chemnitz GmbH and integration into the Lurgi Group

1999

Renamed Lurgi Life Science GmbH

2004

Chemieanlagenbau Chemnitz GmbH established as an independent plant engineering company

2005

New foundation of HUGO PETERSEN GmbH

2006

Acquisition of BiProTech Sp. z o. o., Poland

2013

Foundation of HUGO PETERSEN SpA, Chile

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TURNING **PLANS**

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INTO **PLANTS**

Business Segments	Services	Tasks
• Refinery engineering • Petrochemicals • Natural gas processing and storage • Inorganic chemicals	• Project management • Basic engineering • Detail engineering • Procurement and supply of equipment • Site management • Construction and installation services • Commissioning	• Design and construction of new process plants • Modernisation and expansion of existing process plants • Process optimisation of existing process plants

Your partner for the design of process plants

HEADQUARTERS IN CHEMNITZ

At the company's headquarters alone, more than 250 highly qualified and experienced employees work on the design, procurement, installation and commissioning of process engineering plants for local and international customers.

Refinery Engineering

- Oil Refinery
  - Atmospheric distillation
  - Vacuum distillation
  - Hydrodesulfurisation
  - Reforming
  - Zeoforming
  - Isomerisation
  - Demercaptanisation
- Lube oil refining

Natural Gas Processing and Storage

- Natural gas underground storage facilities
- Natural gas compressor stations
- Natural gas treatment
  - Pre-treatment
  - Purification
  - Natural gas scrubbing
  - Separation of higher hydrocarbons
  - Natural gas compression
  - Sulphur recovery
  - Demercaptanisation

Petrochemicals

- Expandable polystyrene
- Ammonia
- Urea
- Melamine
- Butadiene
- Maleic anhydride
- Nitric acid

Inorganic Chemicals

- Chlor-alkali electrolysis
- Sulphuric acid
- Chlorine purification
- Ammonium sulphate
- Polyaluminium chloride
- Ferric chloride
- Calcium chloride
- Sodium carbonate

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Project management +++

How do you create the good feeling of having the right partner on board for a complex project? In our opinion, by offering more than project management: **Project management + Experience + Passion + IT**.

For our customers this means that they will benefit from our expertise and experience obtained from numerous successfully implemented projects all over the world. However, our passion lends them certainty to not just being one among many. The latest CAE and engineering tools assist us in the effective handling of your project.

CHEMIEANLAGENBAU CHEMNITZ GMBH (CAC), ESTABLISHED ON THE INTERNATIONAL MARKET FOR THE PLANT AND PROCESS ENGINEERING BUSINESS, IS AN EXPERIENCED CONTACT FOR COMPREHENSIVE ENGINEERING SERVICES

We promise you a successful partnership

Working with us means for you: Ideas, expertise and commitment in a transparent and goal-oriented project management. For this purpose we provide you a team of experts specifically tailored to your project. This team focuses exclusively on your projects and assignments. Thus you can always contact an expert, who can make quick decisions and provide information on detailed queries. Friction losses are minimised, effects on saving of time and expenses maximised.

Mike Niederstadt

Jörg Engelmann

Joachim Engelmann

Board of Management

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Project Management

Management of the project team
Schedule planning
Progress control
Cost control
Document management

Engineering

Feasibility studies
Licensor selection
Basic engineering
Authority engineering
Detail engineering

Procurement

Procurement and supply of plant components and equipment
Ordering of construction and installation services
Expediting and inspections
Logistics and shipment

Construction and Installation

Construction site management
Construction and installation services
Quality control and quality assurance

Commissioning

Planning of commissioning
Staff training
Pre-commissioning
Commissioning
Implementation of performance tests

EFFICIENT,
FLEXIBLE,
RELIABLE

Project Management
Engineering
Procurement
Construction and Installation
Commissioning

CHLOR-ALKALI ELECTROLYSIS

By means of chlor-alkali electrolysis, caustic soda or caustic potash solution (NaOH or KOH solution), chlorine (Cl_2) and hydrogen (H_2) are produced by electrolysis of a saline solution (NaCl or KCl solution).

The electrolysis is based on a modern membrane electrolysis process, in accordance with the Best Available Technique (BREF) recommendations established by the EU for the chlor-alkali industry. Feedstock for the chlor-alkali electrolysis are salt (NaCl or KCl) and water (H_2O). The salt originates either from seawater (solar salt NaCl), mineral deposits (rock salt NaCl or KCl) or salt from evaporation processes (evaporated salt: NaCl or KCl).

The primary products of chlor-alkali electrolysis using the membrane process are NaOH as 32 % caustic or KOH as 29 % to 32 % caustic, hydrogen gas and chlorine gas.

Neolyse Ibbenbüren GmbH

Production Joint Venture of Evonik Industries AG & Akzo Nobel Industrial Chemicals GmbH

Location: Ibbenbüren, Uffeln/ Germany
Plant: Chlor-alkali electrolysis
Capacityt: 130,000 t/a potassium hydroxide solution, 82,000 t/a chlorine

Scope of services:

- → Project management
- → Basic engineering
- → Detail engineering and procurement services
- → Expediting and inspections
- → Site management
- → Commissioning support & training

Electrolyser technology:
Asahi Kasei Corporation, Japan

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SULPHURIC ACID

For HUGO PETERSEN, sulphuric acid is not just a technology, but an innovation. For the past 100 years, sulphuric acid plants of the highest standard have been built using the Petersen technology. Over the decades, optimal concepts for the sulphuric acid plants of the world have been developed.

We continuously strive to further optimise and improve our process in the best interests of our customers.

BASF Antwerpen N.V.
Oleum/sulphuric acid plant

Location: Antwerp / Belgium
Plant: Oleum/sulphuric acid plant
Capacity: 1,200 t/d SO_3 (converted into oleum)

Scope of services:

- → Project management
- → Basic engineering
- → Detail engineering and procurement services
- → Expediting and inspections
- → Supply of main equipment
- → Installation supervision
- → Commissioning support & training

HUGO PETERSEN Technologies
Dry catalysis
Wet catalysis
Petersen-Tower-Technology
SUPER^{OX}-Technology

NATURAL GAS PROCESSING AND STORAGE

Natural gas storage facilities provide the following:

- A balance between available supply and required demand
- A balance between seasonal fluctuations (summer/winter)
- Meeting short term peak demand
- A balance in network fluctuations and maintenance of constant pipeline supply pressure
- Guarantee of supply in the event of operational disturbances in production facilities or pipeline systems.

CAC offers its process engineering expertise starting with the planning phase through to the commissioning of the above-ground gas storage facilities. This applies to all plant sections in the main gas stream as well as the associated auxiliary and secondary plants.

Particular attention is directed towards the requirements of safety engineering and environmental protection.

RAG Austria AG

Construction of a natural gas underground storage facility in 2 expansion stages Haidach I and II

Location: Haidach/Austria
Plant: Natural gas underground storage facility in 2 expansion stages Haidach I and II
Capacity: max. process gas volume: 2.64 billion Nm^3

Scope of services:

→ Project management
→ Basic engineering and authority engineering
→ Detail engineering
→ Procurement services
→ Expediting and inspections
→ Site management
→ Commissioning support and training

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REFINERY ENGINEERING

In the field of refinery engineering we offer you our engineering services for the planning and construction of process plants within refineries. Our solutions include both standardised systems and customised plants, which meet your special requirements.

We use our know-how and the customer's technology or cooperate with well-known licensors to offer engineering services that cover all phases of a project from concept development to the turnkey plant.

TOTAL Raffinerie Mitteldeutschland GmbH

Plant for benzene concentration

Location: Leuna/Germany
Plant: Reformate splitter
Capacity: 1 million t/a reformate

Scope of services:

- → Project management
- → Detail engineering
- → Procurement services
- → Expediting and inspection
- → Site management
- → Commissioning and training

PETROCHEMICALS

For several decades we have been dealing with the design, delivery and construction of petrochemical plants. Our experiences cover the construction of plants for the production of ethylbenzene, styrene, polystyrene and expandable polystyrene as well as the implementation of plants for the production of melamine and butadiene.

With our experienced teams of process and technical engineers working hand in hand with renowned licensors, our engineering services cover all phases of a project from developing concepts through to delivery of the turnkey plant.

OMV Deutschland GmbH

Butadiene extraction plant

Location: Burghausen, Germany
Plant: Butadiene extraction plant

Scope of services:

- → Project management
- → Detail engineering
- → Procurement services
- → Expediting and inspections
- → Site management
- → Commissioning and training

Licensor: BASF SE

Ciech Soda Deutschland GmbH & Co. KG

Sodium bicarbonate crystallisation plant

Location: Staßfurt, Germany
Plant: Sodium bicarbonate crystallisation plant
Capacity: 50,000 t/a

Scope of services:

- → Project management
- → Basic and detail engineering
- → Procurement services
- → Expediting and inspections
- → Site management
- → Construction and installation services
- → Commissioning

Licensor: GEA Messo GmbH

Capacity increase of ammonia plant

Location: Germany
Plant: Ammonia plant
Capacity: Expansion of production capacity

Licensor: Casale SA Schweiz

SODIUM CARBONATE

Our cooperation with well-known licensors and our many years of experience in plant engineering puts us in the position to realise complex orders from conversion activities to the construction of turnkey process plants. Our services include the preparation of studies, development of basic and detail engineering, procurement, construction and installation as well as commissioning of sodium carbonate plants. In particular, regarding projects for the conversion and expansion of existing plants for wet calcination (DCB plants) and new plants for the production of pharmaceutical-grade sodium bicarbonate, we can draw on our own experience.

FERTILISERS

In the fertiliser section, we offer complete engineering both for reconstruction measures to modernise and increase the capacity of existing plants for the production of ammonia and for new plants for urea synthesis and urea granulation. In cooperation with internationally recognised licensors such as Stamicarbon B.V./Netherlands, for whom we have official pre-qualification as a contractor, our engineering services can comply with the most diverse requirements: from basic engineering and detailed engineering services to delivery, construction and installation as well as commissioning.

Based on our many years of experience as an international plant engineering company, we also offer the supply of turnkey process plants for urea granulation technology.

AT HOME ACROSS THE GLOBE

Close geographical proximity to our Clients and a direct relationship without intermediaries are of great importance to us. In order to allow for the optimised implementation of all processes of your project, we provide you with local service.

WE ARE YOUR PARTNER FOR YOUR PROJECT

Thanks to our offices in Moscow, Kiev, Krakow, Minsk, Santiago de Chile and Almaty you will benefit from experts with an excellent knowledge of the local conditions. On this basis, we are able to guarantee short official channels in the cooperation, without unnecessary obstacles. Most of all, this allows for the optimal project management of your project. In our foreign offices, of course, we also support you with authority management or help you to solve questions on financing. You do not have to do without CAC's all round service even abroad.
That is our ambition.

01 CAC Chemnitz
Headquarters Germany

02 HUGO PETERSEN Wiesbaden
Subsidiary

03 Biprotech Krakow
Subsidiary

04 HUGO PETERSEN
Santiago de Chile S.p.A.

05 Moscow
Representation in Russia

06 Kiev
Representation in the Ukraine

07 Almaty
Representation in Kazakhstan

08 Minsk
Representation in Belarus

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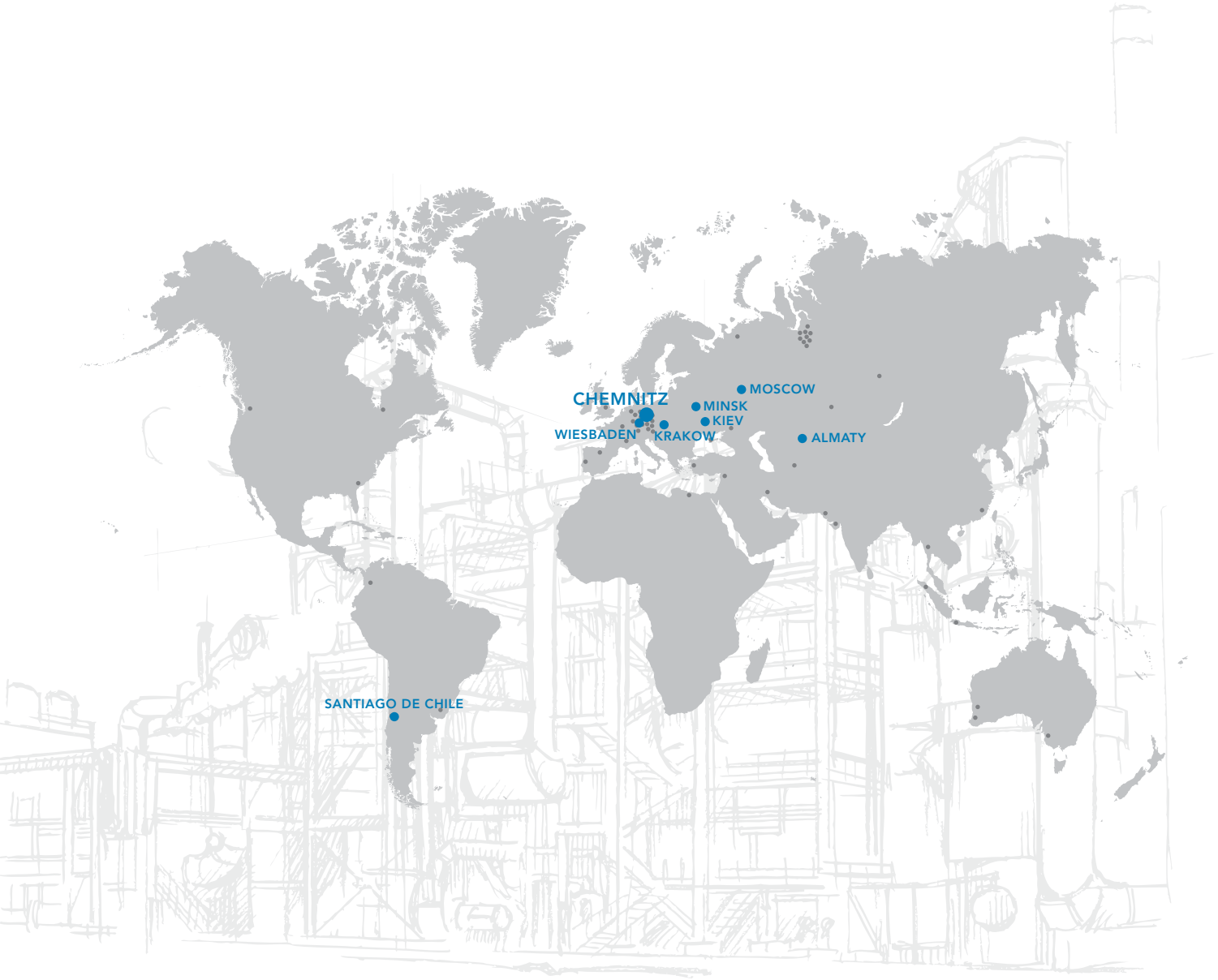

With more than 350 industrial plants built worldwide,
we are one of the leading plant engineering companies in Germany.

More than 250 employees, at the company headquarters alone,
work on your project using state-of-the-art technology and in close cooperation
with customers and suppliers.

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