1 Introducing Chemieanlagenbau Chemnitz

2 Selected References & Current Projects

3 Project Financing
## 50 Years Experiences

<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>1964</td>
<td>Plant Engineering and Contracting Division within the factory <strong>VEB Germania</strong></td>
</tr>
<tr>
<td>1970</td>
<td>Directorate Plant Engineering in collective combine CLG</td>
</tr>
<tr>
<td>1990</td>
<td>Foundation of Lurgi Anlagenbau Chemnitz GmbH and integration in the Lurgi-Group</td>
</tr>
<tr>
<td>2004</td>
<td>Foundation of an independent plant engineering company in Chemnitz and foundation of Chemieanlagenbau Chemnitz GmbH</td>
</tr>
<tr>
<td>2005</td>
<td>Foundation of <strong>HUGO PETERSEN</strong> within the CAC Group of Companies</td>
</tr>
<tr>
<td>2006</td>
<td>Take over of the majority stake of BiProTech Sp. z.o.o. in Kraków, Poland</td>
</tr>
</tbody>
</table>
Structure of the staff by discipline (250 employees in total)

- Board of management: 3 employees
- Process engineering: 19 employees
- Project management: 37 employees
- Plant engineering: 24 employees
- Electricity & instrumentation: 63 employees
- Civil engineering: 13 employees
- Mechanical engineering: 15 employees
- Procurement: 19 employees
- Quality management: 20 employees
- Sales & proposals: 12 employees
- Commercial department: 25 employees
- Administration: 12 employees

CAC offers all Services for construction, reconstruction or expansion of your plant:

- Basic und Detail Engineering
- Authority Engineering
- FEED
- Pre-feasibility and Feasibility Studies
- Provision of Technology
- Financial Engineering (Project Financing)
- Consulting
- Contracting
- International Purchasing
- Project Management
- Construction Supervision
- Supply of Equipment and Components
- Test Run / Commissioning
- Staff Training
- After-Sales-Services
Technologies / Licensors

Own Technologies:
- Gasoline Synthesis based on Methanol / Synthesis Gas
- Sulphuric Acid (subsidiary Hugo Petersen)
- Ferric Chloride (former Krebs Swiss)
- Know how of Chlor-Alkali Electrolysis with membrane electrolysis technology

Licensors (extract):

CAC is open to use Technology of any Licensors
Targeted Industries & Market Segments

**Refinery & Crude Oil Processing**
- Crude oil treatment
  - Dehydration / Desalting
- Lube oil refining
- Refinery Engineering
  - Atmospheric distillation
  - Vacuum distillation
  - Hydrodesulfurization
  - Reforming / Zeoforming
  - Bitumen
  - Isomerization
  - Demercaptanization

**Gas Engineering**
- Underground gas storage
- Gas treatment
  - Pre-treatment
  - Purification
  - Gas scrubbing
  - Separation of higher hydrocarbons
  - Gas compression
  - Sulphur recovery
  - Demercaptanization
- Compressor Stations

**Petrochemicals & Fertilizers**
- Ethyl benzene
- Styrene
- Polystyrene
- Expandable Polystyrene
- Ammonia
- Urea
- Melamine

**Inorganics**
- Sulphuric Acid
- Cl-Alkali Electrolysis
- Salt purification
- Chlorine purification
- Ammonium Sulfate
- Polyaluminiumchlorid
- Fertilizers
  ✓ Sulfur Coated Urea
1 Introducing Chemieanlagenbau Chemnitz GmbH

2 Selected References & Current Projects

2.1 Chlorine Business

2.2 Refinery & Gas Processing

2.3 Petrochemicals & Fertilizers

3 Project Financing
Latest & Current EPC, EPCm Projects

- **(2012) Sajansk, Russia**
  - Expansion: 180K Cl₂, 202K NaOH
  - EPCm

- **(2008) Moscow, Russia**
  - Conversion: 150K Cl₂, 168K NaOH
  - EPCm

- **(2006) Beresniki, Russia**
  - Conversion: 26K Cl₂, 40K KOH
  - EPCm

- **(2008) Sajansk, Russia**
  - Conversion: 150K Cl₂, 168K NaOH
  - EPCm

- **(2002) Sajansk, Russia**
  - Conversion: 150K Cl₂, 168K NaOH
  - EPCm

- **(2011) Soligorsk, Belarus**
  - New Plant: 17K Cl₂, 25K KOH
  - EPCm

- **(2014) Zipaquirá, Colombia**
  - Conversion: 27K Cl₂, 30K NaOH
  - EPCm

- **(2014) Brückl, Austria**
  - Expansion: 32K Cl₂, 36K NaOH
  - EPCm

- **(2015) Ibbenbüren, Germany**
  - Conversion: 82K Cl₂, 130K KOH
  - EPCm

- **(2012) Thann, France**
  - Conversion: 43K Cl₂, 68K KOH
  - EPC

- **(2017) Torrelavega, Spain**
  - Conversion: Confidential Cl₂, NaOH
  - EPC

- **(2017) Izmir, Turkey**
  - Conversion: 103K Cl₂, 113K NaOH
  - EPCm

- **(2017) Torrelavega, Spain**
  - Conversion: Confidential Cl₂, NaOH
  - EPC

- **(2014) Zipaquirá, Colombia**
  - Conversion: 27K Cl₂, 30K NaOH
  - EPCm
<table>
<thead>
<tr>
<th>NO.</th>
<th>CLIENT</th>
<th>LOCATION</th>
<th>PLANT CAPACITY (in thousand tons per year)</th>
<th>YEAR</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>OAO NAVOYAZOT</td>
<td>Navoi, USB</td>
<td>23 Chlorine 26 Caustic Soda</td>
<td>1996</td>
<td>FS BE NEW PLANT</td>
</tr>
<tr>
<td>2</td>
<td>SAJANSKCHIMPLAST I.</td>
<td>Sajansk, RUS</td>
<td>150 Chlorine 168 Caustic Soda</td>
<td>2002</td>
<td>FS BE CONVERSION Hg</td>
</tr>
<tr>
<td>3</td>
<td>ZAO KAUSTIK</td>
<td>Sterlitamak, RUS</td>
<td>150 Chlorine 169 Caustic Soda</td>
<td>2005</td>
<td>FS</td>
</tr>
<tr>
<td>4</td>
<td>NAK “AZOT”</td>
<td>Novomoskovsk, RUS</td>
<td>140 Chlorine 158 Caustic Soda</td>
<td>2005</td>
<td>FS</td>
</tr>
<tr>
<td>5</td>
<td>SODA CHLORAT</td>
<td>Beresniki, RUS</td>
<td>26 Chlorine 40 Caustic Potash</td>
<td>2006</td>
<td>FS BE CONVERSION Hg</td>
</tr>
<tr>
<td>6</td>
<td>OAO NAVOYAZOT</td>
<td>Navoi, USB</td>
<td>53 Chlorine 60 Caustic Soda</td>
<td>2007</td>
<td>FS</td>
</tr>
<tr>
<td>7</td>
<td>OOO TOPAN</td>
<td>Aktau, KZ</td>
<td>35.4 Chlorine 40 Caustic Soda</td>
<td>2007</td>
<td>FS</td>
</tr>
<tr>
<td>8</td>
<td>MOSVODOKANAL</td>
<td>Moscow, RUS</td>
<td>10 Chlorine 11.3 Caustic Soda</td>
<td>2008</td>
<td>BE DE NEW PLANT</td>
</tr>
<tr>
<td>9</td>
<td>FIRAT</td>
<td>Istanbul, Turkey</td>
<td>125 Chlorine 141 Caustic Soda</td>
<td>2009</td>
<td>FS</td>
</tr>
<tr>
<td>10</td>
<td>JSC BELARUSKALI</td>
<td>Soligorsk, Belorussia</td>
<td>16.5 Chlorine 25 Caustic Potash</td>
<td>2011</td>
<td>BE DE NEW PLANT</td>
</tr>
</tbody>
</table>

FE = Feasibility Study, BE = Basic Engineering, PDP = Process Design Package, DE = Detail Engineering
<table>
<thead>
<tr>
<th>NO.</th>
<th>CLIENT</th>
<th>LOCATION</th>
<th>PLANT CAPACITY (in thousand tons per year)</th>
<th>YEAR</th>
<th>REMARKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>SAJANSKCHIMPLAST II.</td>
<td>Sajansk, RUS</td>
<td>180 Chlorine</td>
<td>2012</td>
<td>BE DE EXPANSION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>202 Caustic Soda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>POTASSE ET PRODUITS CHIMIQUES SAS</td>
<td>Thann, France</td>
<td>43.2 Chlorine</td>
<td>2012</td>
<td>BE DE CONVERSION Hg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>68.4 Caustic Soda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>TESSENDERLO GROUP</td>
<td>Loos, France</td>
<td>54.0 Chlorine</td>
<td>2012</td>
<td>PDP CONVERSION Hg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>61.0 Caustic Soda</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>40.7 Chlorine</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>64.5 Caustic Potash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>EVONIK</td>
<td>Luelsdorf, Germany</td>
<td>63.2 Chlorine</td>
<td>2014</td>
<td>FS CONVERSION Hg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>100 Caustic Potash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>DONAUCHEMIE</td>
<td>Brueckl, Austria</td>
<td>31.6 Chlorine</td>
<td>2014</td>
<td>BE DE EXPANSION</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>35.7 Caustic Soda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>BRINSA S.A.</td>
<td>Zipaquirá, Colombia</td>
<td>27 Chlorine</td>
<td>2014</td>
<td>BE DE CONVERSION Hg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>30 Caustic Soda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>JV AKZO / EVONIK</td>
<td>Ibbenbueren, Germany</td>
<td>82 Chlorine</td>
<td>2015</td>
<td>BE CONVERSION Hg</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>130 Caustic Potash</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>PETKIM PETROKIMYA HOLDING A.Ş.</td>
<td>Aliaga, Izmir, Turkey</td>
<td>103 Chlorine</td>
<td>2018</td>
<td>BE, DE CONVERSION MON/BIP</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>113 Caustic Soda</td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>ALTAMIRA-ELECTROQUIMICA DEL CANTABRIO S.A. (CUF)</td>
<td>Torrelavega, Spain</td>
<td>Confidential</td>
<td>2020</td>
<td>BE, DE CONVERSION Hg</td>
</tr>
</tbody>
</table>

FE = Feasibility Study,  BE = Basic Engineering,  PDP = Process Design Package,  DE = Detail Engineering
1 Introducing Chemieanlagenbau Chemnitz GmbH

2 Selected References & Current Projects

2.1 Chlorine Business

2.2 Refinery & Gas Processing

2.2.1 Refinery

2.2.2 Gas Processing

2.2 Petrochemicals & Fertilizers

3 Project Financing
TOTAL Raffinerie Mitteldeutschland GmbH (TRM)

Location: Leuna, Germany

Plant: Reformate splitter
“Benzene Heart Cut Project”

Capacity: 1 million tpy reformate

Services:
- Detail Engineering
- Procurement Services, Expediting and Inspection
- Site Management
- Participation in Pre-commissioning, Commissioning and Start-up

Mechanical completion: 2017

Project Details
Investment value: 40 MM €
A-Position Equipment: 24 pcs.
Number pipelines: 300 pcs. ~ 7.6 km
Largest Equipment: Column d=3.6 m / h=52 m
OMV Refining & Marketing GmbH

Location: Vienna Austria
Plant: FCC Propylene Maximization Project (Expansion & Revamp)
Contract type: EP+Cm

Services:
- Project Management
- Detail Engineering
- Technical Procurement Services
- Construction Supervision
- Commissioning & Start up
- Training of Personnel

Project Completion: 2011

View of the Gas Concentration Unit

3D-View Revamp Areas
Mineralölraffinerie Dollbergen GmbH

Plant: Enhanced Selective Refinery – Used Lube Oil Refinery
Location: Dollbergen / Germany
Capacity: 80,000 tpy
Contract type: EP+Cm

Services:
- Project Management
- Detail Engineering
- Procurement on customer’s behalf and invoice
- Procurement/Construction incl. steel structure
- Construction Supervision
- Commissioning Support

Project Completion: 2005
1  Introducing Chemieanlagenbau Chemnitz GmbH

2  Selected References & Current Projects

2.1  Chlorine Business

2.2  Refinery & Gas Processing

2.2.1  Refinery

2.2.2  Gas Processing

2.2  Petrochemicals & Fertilizers

3  Project Financing
Open Grid Europe GmbH (former E.ON Ruhrgas)

Location: Herstein/ Germany
Plant: Compressor Station
Capacity: 3 mio. Nm³/h

Services:
- Project Management
- Basic Engineering
- Detail Engineering & Procurement
- Construction Management
- Commissioning support

Project Completion: 2017

Example of a Compressor station
Syrian Gas Company
South Middle Area Gas Exploitation

Plant: Gas processing plant
Capacity: 3,0 Billion m³/year
Location: Palmyra, Syria

Services:
- Project Management
- Basic Engineering & Detail Engineering
- Technical Procurement of Equipment & Bulk Materials
- Construction Supervision Assistance
- Commissioning & Test Run Assistance

Project Completion: 2009
1. Introducing Chemieanlagenbau Chemnitz GmbH

2. Selected References & Current Projects

   2.1 Refinery & Gas Processing

   2.2 Petrochemicals & Fertilizers

3. Project Financing
Client Confidential!

Plant: Fertilizer Unit (liquid Solution)

Location: Germany

Licensor: Stamicarbon B.V., The Netherlands

Services:
- Project Management
- Authority Engineering
- Front End Engineering Design (FEED)
- Procurement Services for Cost Estimated Works
- Cost Estimate +/- 30%

Completion of FEED Phase: 2017

Project Details
- Investment value: over 40 MM €
- Main Equipment: 54 pcs.
- Number of pipelines: 400 pcs. (main process)
- Largest Equipment: Reactor d=2,4 m / h=24 m
SKW Piesteritz GmbH

Location: Piesteritz/ Germany
Plant: Ammonia Plant
Capacity: Expansion Project
License: Casale, Switzerland
Contract type: EP+Cm

Services:
- Project Management
- Detail Engineering
- Technical Procurement Services (Support)
- Construction Management
- Commissioning & Start up Assistance
- Training of Personnel

Project Completion: 2017
OMV Deutschland GmbH

Location: Burghausen / Germany
Plant: Butadiene Extraction Plant
Capacity: -
License: BASF / CB&I Lummus
Contract type: EP+Cm

Services:
- Project Management
- Detail Engineering
- Technical Procurement Services
- Construction Management
- Commissioning & Start up
- Training of Personnel

Project Completion: 2015
SAO Sibur Khimprom

Plant: Exp. Polystyrene (EPS)
Location: Perm / Russia
Capacity: 100,000 tpy
Licensor: Sunpor Technology S.A.
Contract type: EP+Cm

Services:
- Project management
- Detail Engineering
- Design specification for civil & structural steel, HVAC
- Deliveries
- Construction Supervision Assistance
- Start-up Assistance
- Training of personnel

Project Completion Phase I: 2011
Project Completion Phase II: 2012
1. Introducing Chemieanlagenbau Chemnitz
2. Selected References & Current Projects
3. Project Financing
Advantages of an ECA-covered Loan

- Long term financing (up to 8-10 years)
  - due to the regulations of Basel III all Banks have the problem to get adequate funding for long durations for „normal“ loans
- Insurance cover reduces necessity for other securities
- Repayment starts after commissioning
- Disbursement only pro rata supply of services and equipment
  - For CAC “Cash against documents”
  - For CLIENT security that CAC only receives funds upon performance
## Project Financing Structure (example)

<table>
<thead>
<tr>
<th>ITB: Invitation to bid</th>
<th>Total Project Scope</th>
</tr>
</thead>
<tbody>
<tr>
<td>30% own sources</td>
<td>70% Loan</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ITB #1</th>
<th>ITB #2</th>
<th>ITB #3</th>
<th>ITB #4 (CAC)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contractor 1</td>
<td>Contractor 2</td>
<td>Contractor 3</td>
<td>85% financed by a Loan covered by Euler Hermes</td>
</tr>
<tr>
<td>15% down payment (client to CAC)</td>
<td>23% Maximum Local Content</td>
<td>26% Foreign Content (e.g. Japan, Switzerland, etc.)</td>
<td>51% German Content</td>
</tr>
</tbody>
</table>

<-- Project Finance Structure (example)

<-- Distribution of Project Scope

<-- Finance Structure for ITB of CAC
Time Schedule for ECA covered Financing

Environmental Assessment + Checking of Financials

Month 1
- Nomination of CAC as Contractor
  - Client
  - CAC
  - Hermes

Month 2
- Initial Presentation
  - Client
  - CAC
  - Hermes
- Hermes Application CAC
  - CAC
  - Hermes

Month 3
- Loan Structuring Mandate
  - Bank
  - Client
- Hermes Application Bank
  - Bank
  - Hermes
- Signing of EP+Cm Contract
  - CAC
  - Client
  - Hermes

Month 4
- Decision Interministerial Committee
  - Decision
  - Interministerial Committee
  - Hermes

Month 5
- Signing Loan Agreement
  - Bank
  - Client
  - (CAC)

Month 6
- Advance Payment
  - Client
  - Bank
- Conditions Precedent
  - Bank
  - Client
  - CAC
- Loan Agreement effective
  - Start

- Month 3
  - Hermes

- Month 4
  - Hermes
Thank you for your attention!