

Chemical Industry Ústí Region

**12th ECRN Congress in Ústí nad Labem
22nd October 2014**

A decorative graphic in the bottom-left corner consisting of three curved lines of increasing length, each ending in a small dot.

Location in Czech Republic



History

- First large scale chemical production in Czech republic – 18th century – production of sulfuric acid in Velké Lukavice
- The Ústí region is one of the most industrialized areas in Central Europe
- Three main reasons for the large scale industry
- The region itself rich of raw materials – minerals – limestone, coal, glass and foundry sands, building stone, kaolin (porcelain clay) and others – Ore mountains (Erzgebirge)
- The largest Czech river – Labe – source of water and waterway route
- The electrical power produced in the coal burning power plants
- First chemical large scale plants in neighborhood of river Labe – production of fertilizers and soda – sodium carbonate

History – sodium carbonate and organic dyes

- Spolek pro Chemickou a hutní výrobu – Ústí
- 1856 – founded Spolek pro chemickou a hutní výrobu v Ústí (*Österreichischer Verein für chemische und metallurgische Produktion zu Aussig a. d. Elbe*) – soda production by Leblanc method
- Around 1900 – joined company with Solvay (Belgium)
- At the beginning of 20th century – Spolek was the biggest chemical company in the Central Europe
- 1906 - Success of inorganics production , start of organic dyes
- 1920 - Spolek is a major European diversified chemical company with the global impact on the Czech chemical industry
- 1938 - Start up of new organic dyes plant in Pardubice (Synthesia) a chlorine chemical substances in Neratovice (Spolana)
- 1945 - Start of synthetic resins production - company split and nationalized

History – inorganic chemistry - fertilizers

- Lovochemie - Lovosice
- 1904 production of sulphuric acid and superphosphate started by Adolf Schram
- 1923 established Czech Factory for the Production of Synthetic Silk
- 1951 Fertilizer Works established
- 1954 production of nitric acid and calcium ammonium nitrate
- 1959 production of carboxymethylcellulose
- 1960 viscose cord rayon production started
- 1964 superphosphate plant accomplished


History – cement production

- Cementárna Čížkovice
- 1898 – established share company Sachsich-Böhmische Portland Cement-Fabrik AG
- large deposit of raw material, cheap manpower, close to German borders
- 1899 – production start up
- 1908-1910 – three new rotary kiln
- 1929-1930 – construction of two new rotary kiln
- 1958 – new heating feedstock – heavy heating oil instead of brown coal
- 1975 – start up of new production units

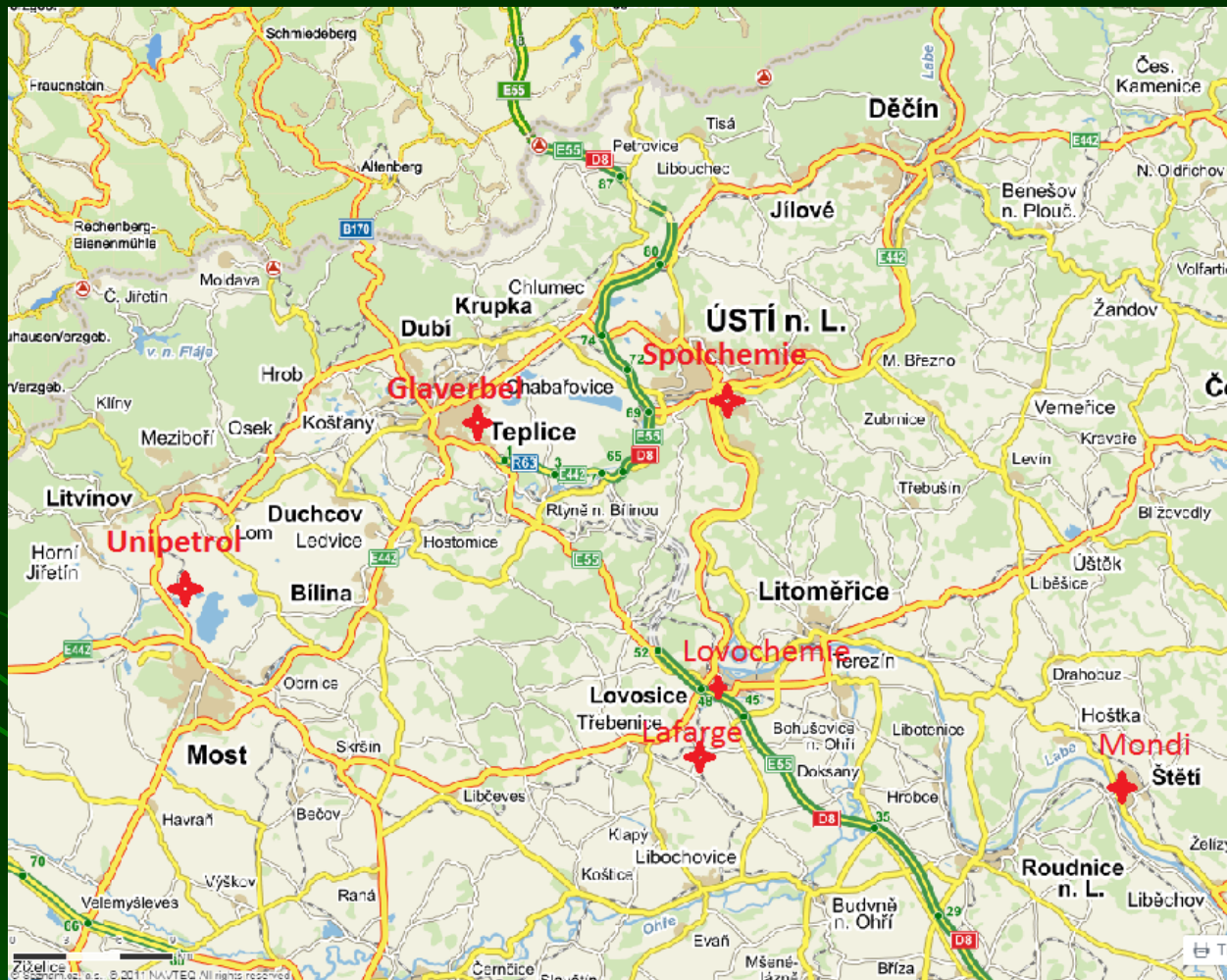
History – crude oil and petrochemistry

- Chemické závody Záluží - Litvínov
- 1939 - Beginning of construction of STW chemical factory (Sudetenlandische Treibstoffwerke AG Oberleutendorf)
- 1942 - first gasoline made of local brown coal
- 1955 - start-up of ammonia production
- 1962 - start up of crude oil processing, new products - synthetic ethanol
- 1965 - Družba pipeline from Russia extended to Záluží
- 1969 - Operation of OXO synthesis, start up of hydrogen production
- 1972 - Chemical coal processing terminated, start up of urea production
- 1975 - Polypropylene production
- 1976 - Polyethylene production
- 1980 - Steam cracker
- 1982 - Hydro cracking
- 1994 - Start of construction of the Ingolstadt-Kralupy-Litvínov pipeline

History – pulp and paper industry

- Papírna - Štětí
 - 1949 - founded Papírna Štětí – production of paper
 - 1960 – construction of pulp production – sulfate technology and pulp bleaching
 - 1968 - the biggest machine for production of paper dedicated to newspaper in the Central Europe
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Chemical Industry today



Spolchemie Group – Ústí n/L

- Holding of companies sharing IMS – joined by property or products and services
- **Spolek pro chemickou a hutní výrobu** – production of
 - synthetic resins - epoxy resins and alkyd resins
 - hardeners and diluents
 - potassium hydroxide, sodium hydroxide, sodium hypochlorite
 - allylchloride, perchloroethylene,
 - hydrochloric acid, liquid chlorine,
 - epichlorhydrine
- Other companies in the group – Epispol, Oleochem, C-efekt, ChS Epi, Zeppoil



Unipetrol a.s. – Litvínov Záluží

- Member of PKN – Orlen Group - Poland
- Holding of companies focused on crude oil processing, production of engine fuels and plastics – polyethylene, polypropylene, member of TOP 10 in Czech Republic

- **Main subsidiaries**

- Česká rafinérská – 2 refineries – Litvínov, Kralupy n/V



- Unipetrol RPA – steam cracker + plastic production



- Benzina – retail – tank stations



- Paramo – asfalts and lubricants



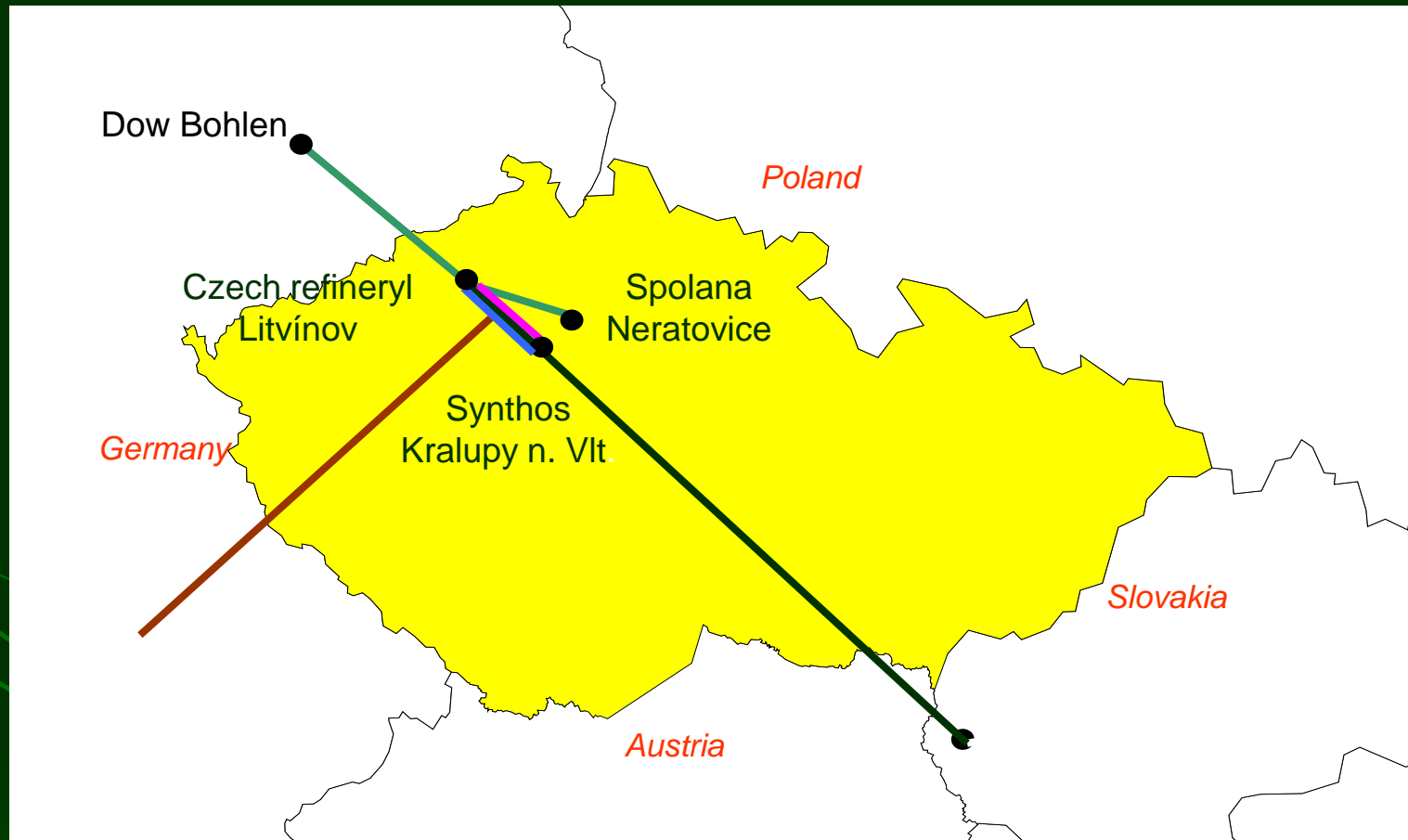


Unipetrol a.s. – Litvínov Záluží

- Installed technologies
 - Crude oil distillation
 - Hydrogenation
 - Isomerization
 - Reformers
 - Hydrocracker
 - Visbracker
 - Steam cracker
 - Partial oxidation
 - Polyethylene
 - Polypropylene
 - Ammonia production



Unipetrol a.s. – Litvínov Záluží



IKL
oil pipeline

Družba
oil pipeline

Ethylene pipeline

EtB pipeline

C4 fraction pipeline

Other chemical company – Litvínov Záluží

- **Air Products Czech republic**



- Production of technical gasses

- Nitrogen, Oxygen, Argon, Helium, Hydrogen

- **Linde Gas**

- Production of technical gasses

- Carbon dioxide



- **Eurosupport Manufacturing**

- Production of tailor made catalysts



Lovochemie - Lovosice

- Member of Agrofert Group
- Core business – production of fertilizers
 - Nitrogen containing fertilizers - ammonium nitrate, calcium nitrate
 - multi-purpose and special compound fertilizers containing 2 to 4 basic nutrients (N, P, K, and Mg)
 - Liquid Special Fertilizers
 - Carboxymethyl cellulose, technical grade
 - Sodium salt of cellulose ether and glycollic acid.

- Member of Agrofert Group
- Core business – development of biofuel in the Czech Republic
- operation of an oily seed plant processing rapeseed
- production of vegetable oil and production of biodiesel (rapeseed methyl ester)
- Production of distilled glycerin



Lafarge - Čížkovice

- Member of Lafarge Group - France
- Core business – production of various types of cement, various types of mortar and plasters, limes for ecological purposes



Mondi - Štětí

- Member of Mondi Group – South Africa
- Core business – production of pulp and paper, various products of packaging



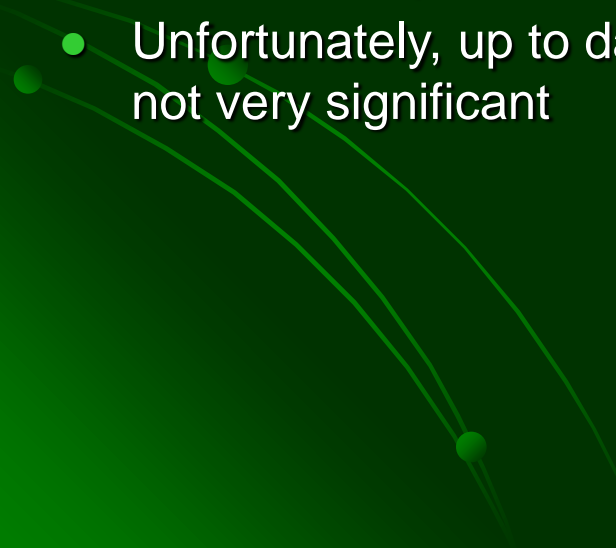
Výzkumný ústav
anorganické chemie, a.s.

VÚAnCH – Ústí n/L

- **Výzkumný ústav anorganické chemie**
- Member of Unipetrol a.s. group
- Research institute dedicated to crude oil processing and petrochemistry
- 2 location
 - **Ústí** - optimization, development and research of technologies of syntheses of basic and/or special inorganic compounds,
 - development and research of technologies of production of fertilizers,
 - minimizing, recycling and disposal of solid, liquid and gaseous waste,

- **Výzkumný ústav anorganické chemie**
- **New project UNICRE** – Unipetrol Centre for Research and Education – completely reconstructed infrastructure and new laboratory equipment
 - **Litvínov – Záluží**
 - Efficient refining technologies
 - synthesis of catalyzers and study of catalyst processes,
 - technology of oil processing - production of fuel, oils and tar,
 - description and utilizing of oil processing by-products.
 - Advanced petrochemical technologies
 - Renewable environmental technologies
- Unique pilot plant for testing in real process conditions with real industrial feedstock, byproducts and technological streams

Summary

- The Ústí region is one of the most industrialized areas in Central Europe
 - Chemical industry together with mineral extraction (coal and other minerals) - one of the most important economical activities in the region
 - Localization of the individual companies depends on the raw material sources and traffic connections
 - The most important companies are uniformly distributed in the region
 - Unfortunately, up to date the mutual cooperation of these companies is not very significant
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