CHANGE YOUR MIND ABOUT PHOSPHATE
ECOPHOS OVERVIEW
About EcoPhos

- Belgian company focused on phosphate technology
- Production and purification of phosphoric acid from low grade phosphate rock
- Unique modular technology platform with multiple combinations
- Process and technology supply for all market segments in the phosphate industry
- **Eco**logical and **Eco**nomical processes → **EcoPhos**
1996 Foundation of the company by M. Takhim and by venture capitalists in Louvain.  
2001 Collaboration agreement with Solvay s.a. which takes part in EcoPhos capital.  
2002 Positive conclusion of the pilot tests of module 1 (Hydrochloric acid attack) in Dombasle (France).  
2004 Second set of tests on modules 1 to 4 (Hydrochloric acid attack) in Dombasle (France).  
2005 EcoPhos takes a part of 50% of DecaPhos, Bulgarian producer of DCP/MCP.  
2006 Acquisition of an EcoPhos’ license by the Syrian company UCCI.  
2007 Joint venture agreement signed with PakAmerican.  
2008 EcoPhos takes 100% control of DecaPhos using its technology, License agreement with Solvay.  
2009 Ecotac: License agreement signed for a new phosphate plant in Saudi Arabia.  
2010: UCCI plant successful start-up  
2012 Namfos: Contract of the construction of a pilot plant in Namibia (base for a future 650kt/y plant using marine rock)
EcoPhos Group

**EcoPhos Group**

- **Situation:** Louvain-la-Neuve, Belgium
  - **Role:** Headquarter, Project development, Project Management, R&D
  - **Resources:** 15 highly skilled employees

[Image of EcoPhos]

- **Situation:** Lummen, Belgium
  - **Role:** Engineering and construction management
  - **Resources:** 65 experienced engineers (process, electrical, mechanical, civil)

[Image of Temco]

- **Situation:** Varna, Bulgaria
  - **Role:** Production (100kt/y DCP/MCP animal feed), Industrial validation, Project support
  - **Resources:** 10 administrative and sales employees, 12 engineers, 8 Laboratory technicians, 40 Production operators

[Image of DecaPhos]
Structure of the company

**EcoPhos Group**
- 150 Employees
- Sales: 39M€
- Net profit: 6,5M€

General Mgt
- CEO

Sales & Purchase Mgt
- R.M. Purchase & Procurement

Financial Mgt
- Sales

Production Mgt
- DecaPhos Plant

Licence / Asset Mgt
- Animal feed Division
- Fertilizer Division
- High Purity Division

R&D Mgt

Engineering Mgt
- Temco
Process industrialization

- Development
- Pilot Scale
- Industrial Validation

New Plants
Development and intellectual properties

8 patents in more than 50 different countries

Rock phosphate valorisation:
- Method for producing phosphoric acid
- Method for the production of phosphoric acid and/or a salt thereof and products thus obtained

Phosphoric acid purification:
- Liquid medium extraction purification method
- Method for concentrating phosphoric acid
- Process for the production of high purity phosphoric acid

Other phosphate derivates:
- Method for etching phosphate ore
- Method for producing strong base phosphate
- Mineral additive for a dietary composition for animals and method for the production thereof
The objective of EcoPhos is to deliver business solutions based on EcoPhos technologies.

Therefore, EcoPhos:

- Develop innovative technologies for each market segment in the phosphate industry.
- Perform the engineering of the projects (BE).
- Identify strategic partners and equipment suppliers for the development and furniture of the key equipment.
- Build commercial alliances with world class companies.
- Sell Licenses for
  - New plants,
  - Revamping of existing plants to use EcoPhos technology.
EcoPhos Business Strategy in Bulgaria

Business model:

1. Production of animal feed phosphate (DecaPhos)

2. Pilot plant: Industrial tests of the phosphate rock of new customers (TechnoPhos)

3. Project services delivery of EcoPhos clients (TechnoPhos)

4. Trading & logistic services for EcoPhos group needs: TecoChem; DecaPhos; ...
Strategy: Production of animal feed phosphate

- **Product:** DCP/MCP animal feed quality
- **Raw material:** Phosphoric acid: from Agropolychim or imported for outside OCP, ...
- **Capacity:** 7.5T/H or 60KT/year using a new equipment and EcoPhos/DecaPhos Know How.
- **Organization:** Well skilled plant operators with a good background in the phosphate industry.
- **Market:** Central and east Europe; Middle East.
- **Location:** Black sea Varna European zone
Strategy: Industrial tests of the phosphate rock of new costumers

✓ Labor: Well trained labor to run EcoPhos process
✓ Equipment: All the modules of EcoPhos can be tested on installed equipment using a new pilot plant facilities
✓ RM& Chemicals: Available supply of all chemical necessary to conduct the process operation
✓ Permit: Full operating and environment permit are granted
✓ Effluents: Possibilities to handle and process all the effluents produced during the tests for EcoPhos clients
✓ Demonstration unit: offer of full 10 days running units demonstrating the workability of EcoPhos process
✓ Reporting: all the analysis and test report are provided by Phostech technical team after the test
Strategy: **Industrial tests of the phosphate rock of new customers**

How we use DecaPhos to validate our process?

EcoPhos Operation Process Design Management

- **EcoPhos**
  - Evaluation & improvement
  - Laboratory R&D
  - Screening
  - Concept
  - Preliminary design

- **TechnoPhos**
  - Prototyping & Industrial validation
  - Industrial Scale
  - Evaluation Asset & Position on the market

Input:
- Materiel
- Information from customers

Output:
- New EcoPhos Process

Facilities Staff

Customer Requirement

Time & Cost Decreasing

EcoPhos Project Managers
Project services delivery of EcoPhos clients

- Labor: Well trained project team to EcoPhos process with capable people from WP Sofia
- Services: Full project services (procurement, technical review, engineering interfacing, logistic, payment and schedule monitoring...)
- Low cost: low cost man-hour services to EcoPhos 30-40€/H against 60-85 €/H W Europe
- Procurement: Selecting the best suppliers from Europe mainly from Bulgaria at attractive Cost/quality ratio.
- Engineering support: reviewing all the technical spec and drawing before and after the equipment ordering
- Logistic: transport, storages and delivery report to the costumer
- Flexibility: Flexible resource mobilization depending on the real needs of EcoPhos
- Legal and invoicing support: PO and contract preparation, payment follow up...
- Equipment selection: Possibility to check the performance of the new equipment at the production plant before its selection on the system offered to the final end user
Decaphos

Packaging

Lab facilities

Control room with DCS system
Decaphos

- DCP belt conveyors to flash dryer
- Flash dryer
- DCP crystallization line
- Centrifuges
Decaphos

Main building

Close to the harbor
Why EcoPhos chooses to invest in Bulgaria

- Very competitive workforce cost
- Highly skilled engineers
- Low taxation
- EU & Nato member
- Good geographic location
- Good RM supplier network
- Strong logistic infrastructure
- The country is very beautiful and its food is delicious!
- ...

ecophos
Thank you!