

Bengt Hansen

Kemira statement on phosphorus



Coagulants are essential for phosphorus recovery

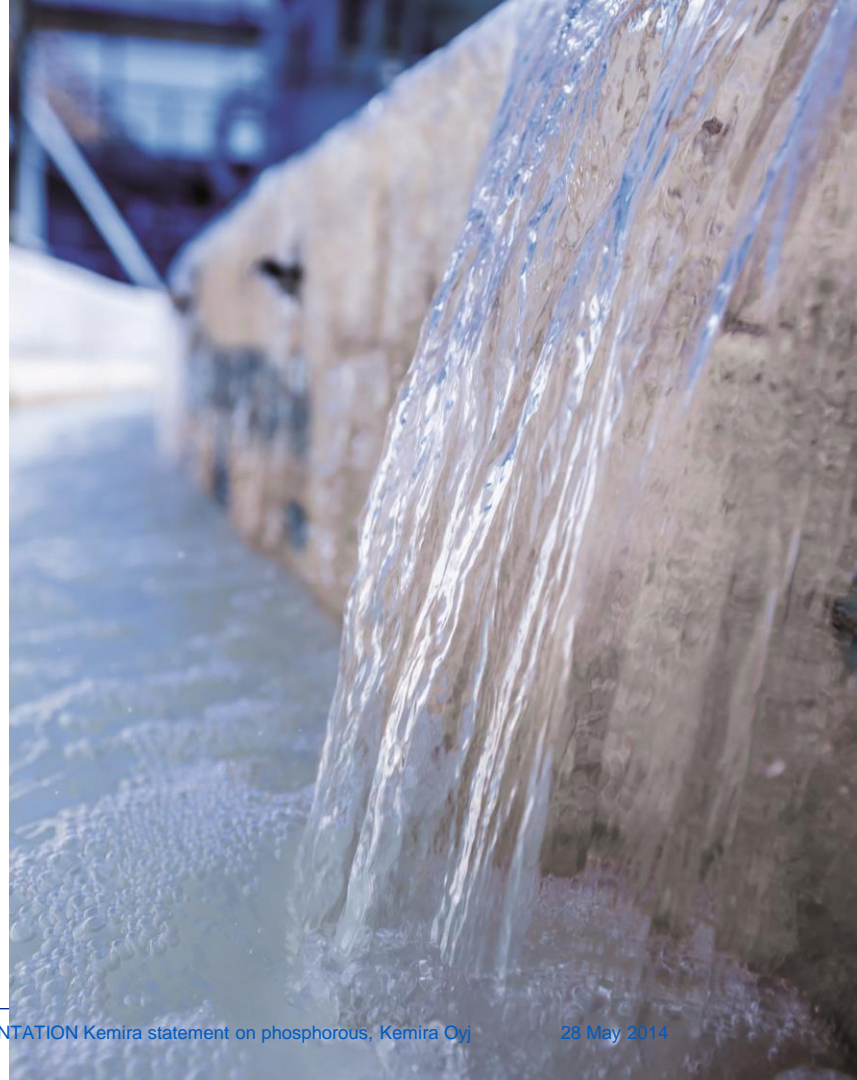
The chemical treatment of industrial and municipal wastewater and the use of coagulants to capture phosphorus are essential to meeting EU policy goals from an environmental, energy efficiency, economic, security of supply and employment perspective.



Kemira

Where water meets chemistry

- Kemira is a global chemicals company serving customers in water-intensive industries.
- Kemira provides expertise and tailored combinations of chemicals that improve our customers' water, energy and raw material efficiency.
- Our focus is on pulp & paper, oil & gas, mining and water treatment.
- In 2012, Kemira had annual revenue of EUR 2.2 billion and around 4,900 employees.
- Kemira shares are listed on the NASDAQ OMX Helsinki Ltd.



What are coagulants?

Proven environmental friendly water treatment

- Coagulants are inorganic salts of iron or aluminium
- Coagulants are used both in drinking water production and wastewater treatment
 - In wastewater treatment iron coagulants are much more commonly used
- In wastewater treatment coagulants are used for
 - Phosphorus removal
 - Unloading biological treatment
 - Minimize foot print and hence investment cost
 - Increasing biogas production
 - Reduce energy consumption
 - Removal of odour
- Kemira also supplies organic coagulants and polymers for
 - Sludge dewatering
 - Water treatment
 - Additives



Environmentally sound and energy efficient

Environment

- Based on recycled raw materials
- Chemical treatment most efficient technology
- Combined chemical and biological best for environment
- Precipitated phosphorus in sludge is available

Energy efficient

- 50% reduction of energy consumption in biological treatment
- Up to double biogas production vs. bio-P
- Coagulants gives lowest carbon footprint



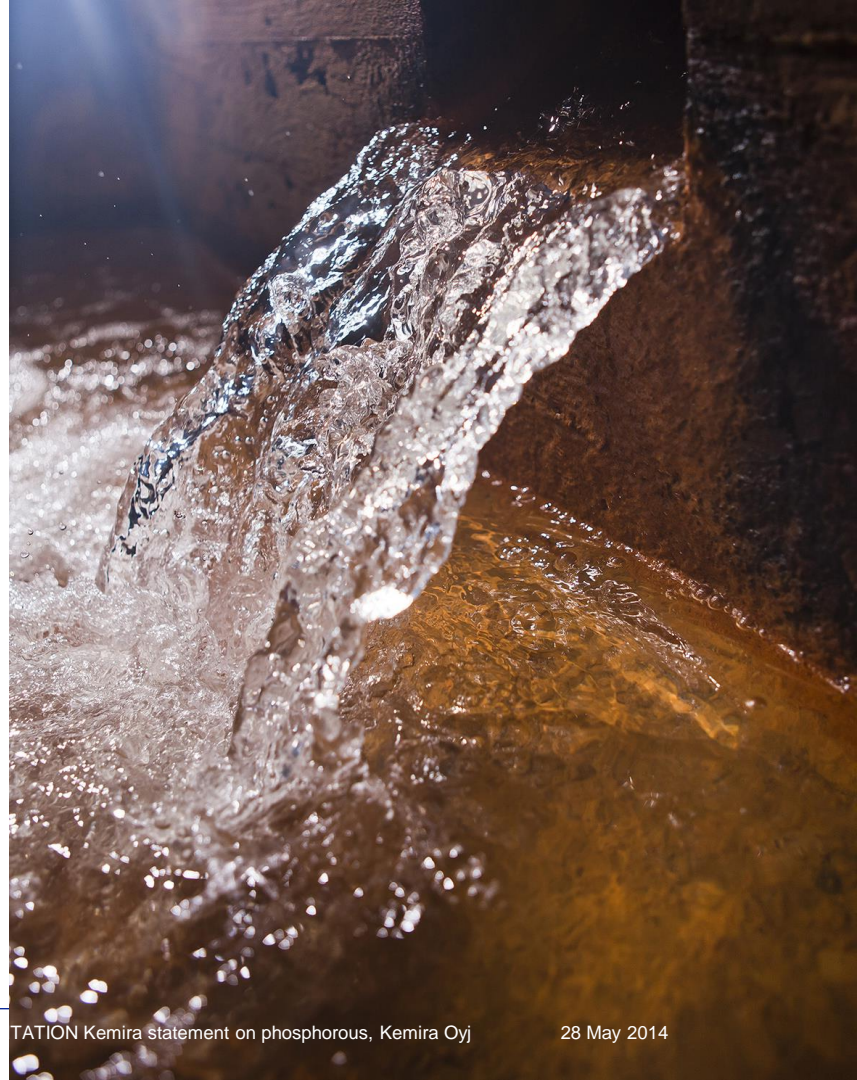
Economic and Security of supply

Economic

- With chemical treatment investment cost and energy cost kept at a minimum
- Water treatment facilities cannot afford to

Security of supply

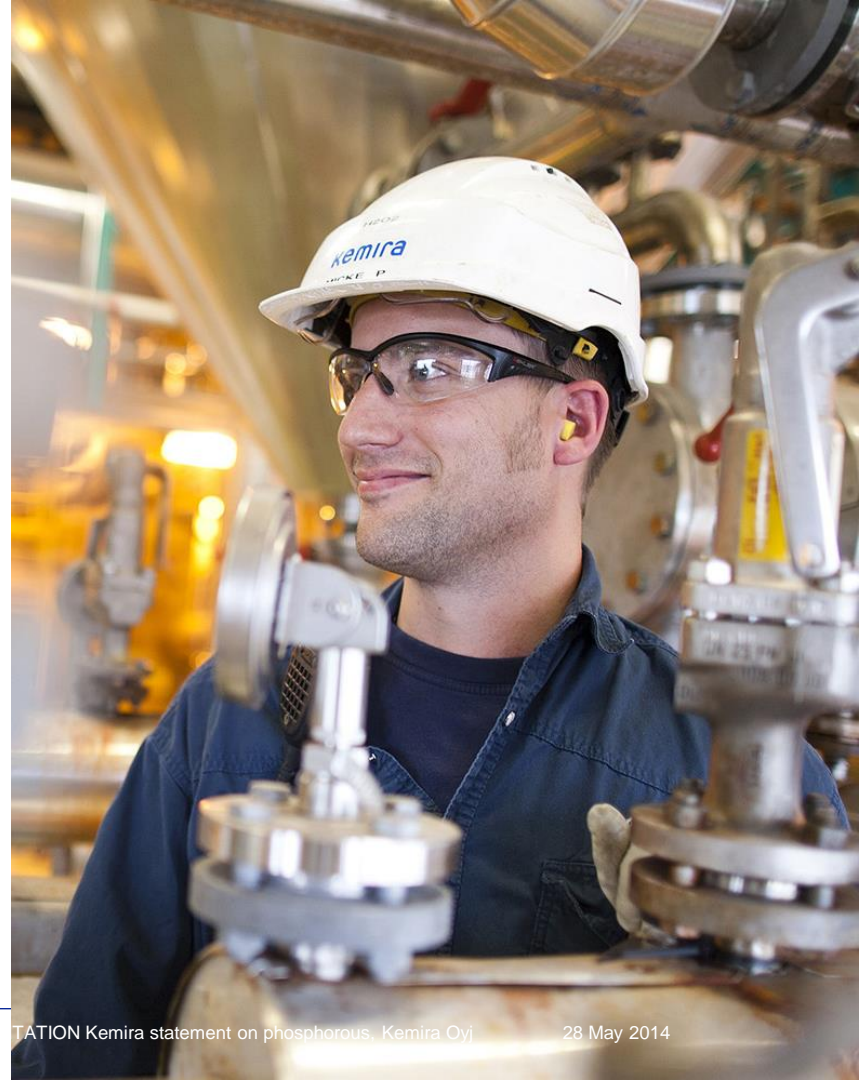
- Europe is 95% dependent on phosphorus imports
- Currently, within Europe, we only recycle about 32% of the phosphorus in wastewater.
- With the use of coagulants, 90% of the phosphorus today lost to the recipient could be captured
 - With chemical precipitation of phosphorus from waste water, more becomes available for recycling



Employment in Europe

We are creating jobs in Europe

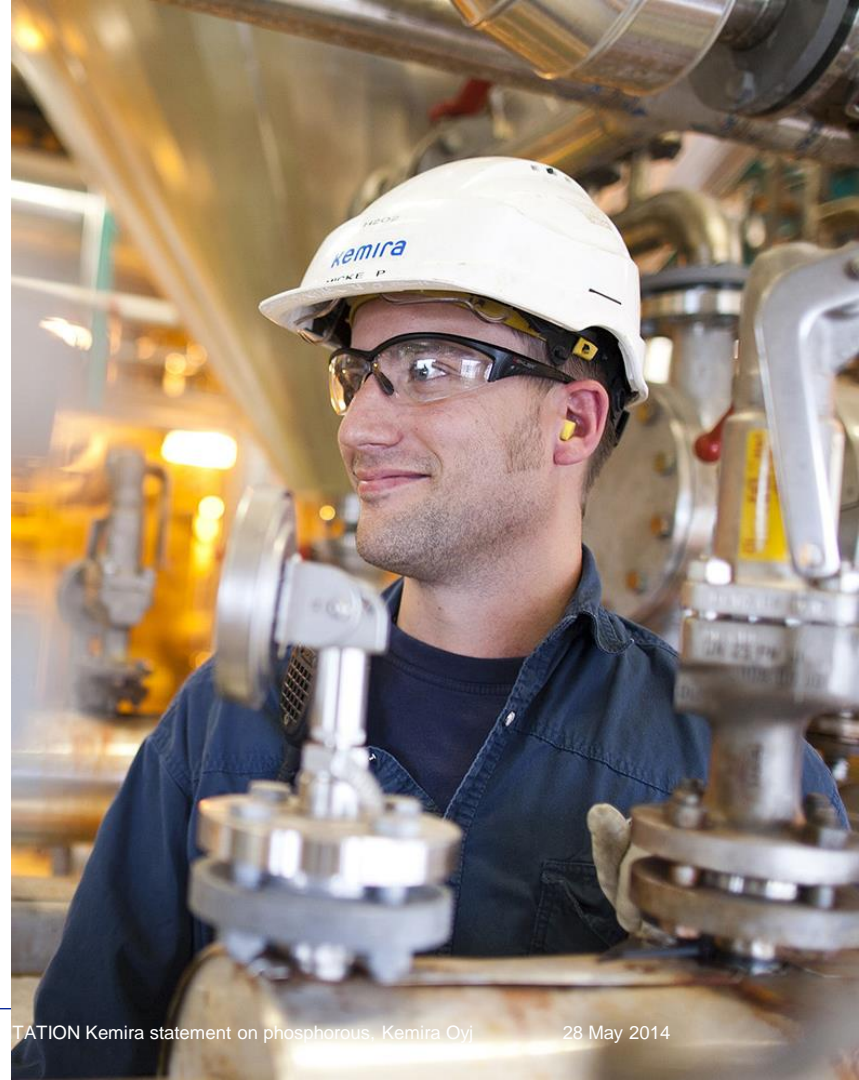
- Kemira alone has 1,700 employees in its Municipal & Industrial division
- There are around 50 producers situated all over Europe.
- Coagulants manufacturing takes place locally, which means economic activity and employment spread across the whole EU
- With increasing environmental awareness, EU companies can sell their products, systems and consulting services abroad.
- By recycling phosphorus more intensively than we do today, we can safeguard a sustainable, efficient and well-functioning EU agricultural sector.



Conclusions

The chemical treatment of industrial and municipal wastewater and the use of coagulants to capture phosphorus are essential to meeting EU policy goals from an environmental, energy efficiency, economic, security of supply and employment perspective.

**Kemira is very proud to
be a part of this world**



Where water
meets chemistry™

kemira

