

Input to the European Commission’s consultative communication on the sustainable use of phosphorus (COM(2013) 517 final)

INCOPA (the European Inorganic Coagulants Producers Association) is a Sector Group of Cefic, the European Chemical Industry Council.

INCOPA’s membership includes 31 producers of inorganic coagulants with about 100 production units representing more than 85% of the European production capacity. The member companies produce either aluminium or iron salts which are used for water treatment, paper manufacturing, in the cement industry and fertiliser production. The carbon footprint of the industry is very low. One reason is that the raw materials used in coagulant manufacturing are generally recycled materials from other industries.

Coagulants play an essential role in our everyday lives as they are used to purify drinking water and treat wastewater. The use of coagulants in waste water treatment plants does not put any restriction on the sludge treatment options: recycling or incineration. The decision can be taken based on local needs and the individual quality of the sludge. Coagulants do not hamper the possibilities for improved phosphorus reuse e.g. in agriculture as it is the soil chemistry and the plant roots that determine how available the phosphate is.

Coagulants represent an environmentally and economically sound wastewater treatment solution, which creates employment and growth while helping to secure Europe’s supply of phosphorus.

INCOPA wishes to provide the following input to the questions raised in the stakeholder consultation on the sustainable use of phosphorus.

Q05	<i>Which technologies have the greatest overall potential to improve the sustainable use of phosphorus? What are the costs and benefits?</i>
	<p>With the use of coagulants, 90% of the phosphorus lost with treated water today can be captured at the treatment plant and can be recycled. To be able to recycle most of the phosphorus we need to remove as much as possible from wastewater and then recover from all the sludge. Today approximately 30 different processes to concentrate/separate phosphorus are under development, thus performance, applicability and economy have still to be scrutinized in detail.</p> <p>The current costs of recycling phosphorus are higher than using rock phosphate and therefore economic incentives for phosphorus recycling may be required. However, the benefit will be improved quality control, with less risk of pathogens and toxic elements ending up in agriculture. Benefits will also include lower freight costs and possibly also energy production from the sludge.</p>

Q06	<i>What should the EU promote in terms of further research and innovation into the sustainable use of phosphorus?</i>
	<p>We support the development of processes that can use wastewater sludge for phosphorus recycling. It is very important to determine the bioavailability of different phosphorus sources. Instant availability of soluble phosphorus is not always necessary or desirable. Phosphorus with low water solubility will potentially minimize the loss through leaching from the soil and maximize the efficient use of phosphorus over time.</p> <p>In terms of research we suggest looking at the availability over time of phosphorus to plants and how to get the best possible uptake of phosphorus without leaching from the soil. Not only the availability of phosphorus should be studied, but also how other fractions of the organic side stream affect the plants, how organic matter supports the growth and where possible contaminants will end up.</p>
Q07	<i>Do you consider that the available information on the efficiency of phosphorus use and the use of recycled P in agriculture is adequate? If not, what further statistical information might be necessary?</i>
	<p>No. There are conflicting statements in the literature regarding the bioavailability of phosphorus. It must be clarified how and when different phosphorus sources are available for the plants in different soils and what other benefits they might give.</p>
Q08	<i>How could the European Innovation Partnership on “agricultural productivity and sustainability” help to take forward the sustainable use of phosphorus?</i>
	<p>The European Innovation Partnership (EIP) could encourage phosphorus recycling projects through financing of R&D and demonstration projects.</p> <p>There are many different opinions regarding sludge recycling and it would be important if EIP could sponsor high quality scientific studies on how to safely recycle sludge phosphorus to agriculture. Solubility of phosphorus in different phosphorus sources does not show the true uptake figures since it also depends on soil quality. For instance, it is not necessary that a water soluble phosphorus fertilizer gives the highest uptake. Therefore it must be clarified how and when different phosphorus sources are available for the plants in different soils and what other benefits they might give.</p>
Q09	<i>What could be done to ensure better management and increased processing of manure in areas of over-supply and to encourage greater use of processed manure outside of these areas?</i>
	<p>Iron salts can be used for improved dewatering of manure as well as for improved biogas yield and quality (when manure is anaerobically digested) and for hydrogen sulphide removal. There is a need to better understand the benefits of the addition of iron salts in the whole chain from manure dewatering to when manure is brought back to agriculture. We therefore encourage research in this area.</p>

Q10	<i>What could be done to improve the recovery of phosphorus from food waste and other biodegradable waste?</i>
	Iron salts can be used for improved biogas yield and quality (when anaerobically digested) and for hydrogen sulphide removal. There is a need to better understand the benefits of the addition of iron salts in the whole chain from food waste and other biodegradable waste. We therefore encourage research in this area.
Q11	<i>Should some form of recovery of P from waste water treatment be made mandatory or encouraged? What could be done to make sewage sludge and biodegradable waste more available and acceptable to arable farming?</i>
	<p>The recovery of P should be encouraged. Through the full implementation of the wastewater directive and the sludge directive more phosphorus should be captured, resulting in a better water environment and more phosphorus available for recycling. To increase the reuse of sludge, there is a need to apply strict quality standards for sludge and biodegradable waste in order to prevent potential contamination of the sludge.</p> <p>To suggest that iron coagulants should not be used in water treatment due to poor solubility of iron phosphate is misguided and potentially damaging to the aims for improving phosphorus reuse. Iron coagulants do not hamper the possibilities for improved phosphorus reuse efficiency. It is the soil chemistry and the plant roots that determine how available the phosphate is. Therefore in many cases it is preferable to have iron precipitated sludge since less phosphorus will leach into ground water and erode from the soil, while the slow release of the phosphorus is advantageous to the growing crops.</p>
Q12	<i>Are there any other important topic related issues, that should be addressed in the consultation?</i>
	The cost to implement different phosphorus separation methods from wastewater must be thoroughly investigated. For instance, how much would it cost for a wastewater treatment plant to convert from chemical phosphorus removal to biological. This should be evaluated for different sizes of wastewater treatment plants since the costs are expected to be very high, especially on small wastewater treatment plants. Also the cost to extract phosphorus from sludge liquors, sludge itself and from ashes (including incineration costs) must be evaluated for different sizes of plants.

For further information:

INCOPA Secretariat

C Andersson (e-mail: can@cefic.be; Tel +32 2 6767248)