Electrodialytic separation of phosphorus and heavy metals from sewage sludge ash

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Phosphorous –Some facts
• Phosphorous is a limited resource and an essential nutrient.
• Phosphate rock (P-rock) reserves are foreseen to be depleted in 300-400 years [1].
• In the last decade, the EU imported around 90 % of the P-rock that it consumed (IFA).
• In the EU there is a flow of 182,000 t of non-recycled P yearly from sewage sludge, around 20% of the EU P-rock consumption (Van Dijk et al. submitted).
• A common practice in some countries (DE, NL, BE, AT, CH, US, JP, HK) is incineration of sewage sludge. In recent years, gasification has gained attention.

Electrodialysis: a technology to recover P from sewage sludge ashes
• A patent has been filed from DTU (WO 2015/032903) for the 2-compartment Electrodialytic (ED) cell.

Low-temperature gasification technology
• Due to the low temperature it is possible to use high alkaline fuels. Examples: straw, sewage sludge, etc.
• The resulting ashes, might have a high content in heavy metals or have a poor P-plant availability.

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