

## PHOS4green

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**PHOSPHORUS RECOVERY FROM SEWAGE SLUDGE ASHES**

## UTILIZATION OF UNUSED PHOSPHORUS SOURCES



### *High performance products made from sewage sludge ash*

With PHOS4green, you can turn sewage sludge ash into valuable soil-specific and plant-specific fertilizers that are equivalent to conventionally-made fertilizers and comply with the federal fertilizer ordinance:

- » Super or triple phosphate, with up to 46% available phosphate content
- » Multi-nutrient fertilizers (NPK, NP, PK) for customized plant nutrition

### *Phosphate - an irreplaceable nutrient*

Phosphorus ores are important raw material sources for the production of a wide variety of phosphorus-containing products that are used in industry and agriculture. Most of the world's phosphorus is used in fertilizers and animal feed. However, the known phosphorus reserves are decreasing worldwide. This is particularly problematic because phosphate that is used in fertilizers cannot be replaced and intensive farming without phosphate fertilization is impossible.

### *Source of raw phosphate: sewage sludge*

Organic residues such as sewage sludge, farm manures such as liquid manure and dung, as well as fermentation residues are a cost-effective and sustainable alternative to mineral fertilizers. However, direct application is coming under increasing criticism. In addition, it is hardly possible to achieve an ideal level of fertilization and thus over-fertilization is often the result.

### *Utilizing valuable phosphate resources*

Different approaches to using or extracting phosphorus from the ash of mono-sludge incineration are usually not economically viable and are often technically immature under the current market conditions and have considerable deficits within the typical fluctuation range of the ash composition. Phosphorus products that are manufactured by means of such processes, so-called recyclates, are not suitable for fully covering plant and soil-specific nutrient requirements and are therefore only of limited use to farmers.



The produced fertilizers can be used in both conventional and organic farming.

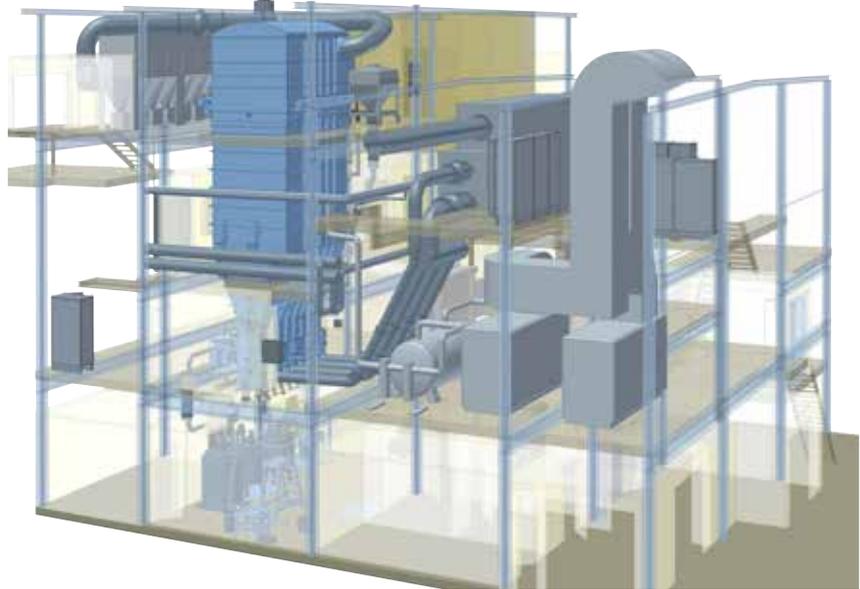
### *Your benefits:*

- » Reliable disposal by converting sewage sludge ash into high-quality, marketable fertilizers
- » Utilization of indigenous sources of phosphorus
- » Production of soil and plant-specific nutrient fertilizers in compliance with DüMV
- » Elimination of expensive disposal costs
- » Complete, waste-free recycling of sewage sludge ashes

## PHOSPHORUS RECOVERY USING GLATT TECHNOLOGY

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*With our innovative PHOS4green technology, you can flexibly use phosphate nutrients that were previously lost. Create a native, long-term secured phosphate source for sustainable agriculture!*



### *An innovative solution*

We offer you an economical and flexible technology for extracting phosphorus from sewage sludge ashes. We have developed an innovative, patented process in which sewage sludge ash is first generated from the phosphate-containing secondary raw material, and a suspension is produced from mineral acid and further nutrient components if necessary. The phosphate in the sewage sludge ash is macerated by the acid.

The suspension that is thereby produced is then spray-granulated in a fluidized bed apparatus. The production of the suspension and thus the reaction of the phosphate conversion takes place separately from the granulation process. In this way, valuable granules are created that can be used as high quality phosphate fertilizers or as plant and soil-specific multi-substance fertilizers, for instance as NPK fertilizer.

*Glatt is your engineering and technology partner with more than 60 years of process expertise. We accompany you from the initial idea through the consultation stage at the time of process and general planning, all the way to start-up of turn-key production.*

### *Concept, process & factory planning*

Glatt offers the possibility to adapt the process and systems to your specific requirements. You can benefit from our many years of experience in process optimization!

### *A complete package: Plant engineering + process expertise*

We offer planning services from the overall concept to detailed planning and build and deliver your plant turnkey. So we are your one-stop shop for all of the necessary technology for the manufacturing process and the process expertise.

### *Site-specific recycling solutions for mono-incineration plants with heat and mass flow coupling*

The use of waste heat and the saving of environmentally incompatible substance transports by recycling the accumulating phosphate ash from the mono-incineration plants further improve the ecological balance.

### *Marketing of fertilizer*

Upon request, we can put you in touch with cooperation partners who have an excellent sales network for your products.



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[www.phos4green-glatt.com](http://www.phos4green-glatt.com)

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