

### **Procedure for sewage sludge composting**

Our partner, a Hungarian SME has developed a new procedure for sewage sludge composting. Our partner has several years experience in composting technology and it has more useful and environmentally friendly composting technology.

The offered composting technology is suitable for composting sewage sludge. It is based on the application of controlled composting for rapid degradation of organic pollutants and immobilization of inorganic micro-pollutants for safe land disposal by using industrial slurry-phase by-products (e.g. by-products from sunflower seed oil processing industry). The process of controlled composting contributes to preserve the fertilizer value.

Before the composting the untreated sewage sludge is mixed with waste sludge (e.g. sludge produced by sunflower seed oil processing industry) and other specific additives to accelerate mineralization and to moderate ammonia and GHG (greenhouse Gas) emission.

In some cases composting simulation is used for optimization of raw material composition and gas emission controlling within 3 weeks in an adiabatic drum system.

Composting occurs under controlled condition means that additives, digesters and labile carbon sources are added continuously to the compost pile. Specific additives are responsible for the suitable and rapid mineralization and thermophilic stage to preserve fertilizer value.

Depending on the properties of raw materials encapsulated windrow composting is applied for controlled composting which means a covering of compost pile by using specific polymers.

The end-product is a potential source for soil improvement and conditioning after 4-pre- and 6-week-term post maturation stages.

The whole composting process is not longer than 70-90 days.

#### **Innovation consideration**

- During the pre-storage of raw sewage sludge the GHG (Greenhouse Effect) emission and f. coliform and streptococcus number is reduced significantly within 24-48 hours.
- Application of composting simulation occurs under controlled and closed condition contributes to the preservation of fertilizer value.
- Utilization of specific non-hazardous additives and residuals from different industrial activities induces longer thermophilic phase.
- Acceleration of organic micro-pollutants' degradation and immobilization of inorganic toxic elements result safe land disposal.
- encapsulated windrow composting for moderation of runoff of macro and trace elements

#### **Main advantages:**

- During the pre-storage of raw sewage sludge the GHG (Greenhouse Effect) emission and f. coliform and streptococcus number is reduced significantly within 24-48 hours.
- Application and utilization of non-hazardous specific additives and digesters result safe land disposal.
- Application of non-hazardous additives, digesters, water treatment residual by-products is suitable for reduction of total N loss, P loss and suppressing pathogens before and during the composting.
- The offered technology is based on using of encapsulated semi-permeable membrane covering for moderation of GHG and odor emission.
- The offered technology is able to utilize solid phase biogas residuals, post maturation of pre-matured municipal sewage sludge from closed composting reactor or root-zone treatment.



**Potential users:**

The offered technology can be used by sewage works or the city management of regional governments.

**Intellectual property rights status:**

International patent is granted.

**Type of collaboration:**

Licence agreement and according to the agreement the potential partners can get right for sale.

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