

Procedure for treatment of meat industrial waste

Our partner, a Hungarian SME has developed a new procedure for the pre-treatment and two-stage thermal treatment of meat industrial solid phase or sludge waste for rapid reduction of odor emission furthermore suppressing pathogens in the early stages of total treatment period before the composting.

The newly developed technology is based on the complex utilisation of following raw materials:

- livestock wastes, TSE free animal organs, manure, semi-liquid manure, food-processing industrial wastes, canning industrial wastes, diary industrial wastes, technological sewage sludge
- meat meal, solid phase or semi-liquid phase biogas residues, animal meat, animal hair, animal skin, eggs, diary products, feathers

The aim of the technology is to provide a composted end-product, which can be potentially used for soil-improvement and conditioning with high total organic matter, total N, total P, total K content.

The technology procedure includes 3 phases,

1. Pre-treatment:

Pre-storage of meat industrial wastes cause significant odor emission: S-compound, ammonia, phenolic compounds, volatile fatty acids (C2-C7). It can be easily minimized by using essential plant oils with application of conventional additives. Our partner's full-scale experiment demonstrated that utilization of additives caused significant inhibition effect on pathogen survival in 48 hours.

2. Two-stage thermal treatment:

During the treatment the company applies a two-stage method by using non thermophilic phase before the second thermal stage at temperatures below 60 °C. After the second thermal stage plant derived oils are used for deodorization and conservation of short-chain organic and fatty acids.

3. Composting:

Depending on the physical-chemical characteristics the composting procedure is planned by using adiabatic bioreactor.

Innovative considerations:

- lowering of gaseous emission and pathogen number during pre-storage
- optimal hygienization via two-stage thermal treatment
- mechanical and biological pre-treatment of ligno-cellulose admixture for suitable microbial carbon source utilization
- the technology is a potential use for complex transformation of different animal wastes: TSE free animal organs, manure, semi-liquid manure, food-processing industrial wastes, canning industrial wastes, diary industrial wastes, technological sewage sludge
- the technology is suitable for utilization of solid or semi-liquid phase biogas residual wastes

Advantages:

- the pre-treatment of meat industrial wastes induces significant reduction of indicator number of total coliform number during storage
- the complex controlled composting procedure results in an environmentally friendly product for plant nutrition and soil improvement
- via controlled treatment composted meat industrial product has significantly higher organic matter, total N, total P content than manures from conventional mesophilic and thermophilic digesting procedure
- the compost product is an organic source for revitalization of mine spoils and municipal solid waste landfills during recultivation



Potential users

- waste treatment and recycling industry
- food processing industry
- meat industry
- plant nutrition
- agrochemistry

Intellectual property rights status

The product is available for demonstration but not patented yet.

Type of collaboration

Our partner is interested in technical cooperation, establishing a commercial agreement

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