TERRASYSTEM®
www.terra-3000.com

TERRA-Microorganismsm – T-Mo

Green-Waste Management

Reduce

Reuse

Recyclen

Recovery

Restoring

Renewable

Solutions for a better environment

T-MO - Product Specification

T-MO is a liquid that contains microorganisms (soil bacteria), used in agriculture and does not contain any fertilising substances such as phosphorus, nitrogen and potassium.

The aerobic soil bacteria promotes the supply of the plant with nitrogen, phosphorus and potassium by the conversion of atmospheric nitrogen as well as phosphorus and potassium-containing compounds in the soil.

Our procedure is based on the transformation from anaerobic into aerobic processes.

Anaerobic processes are putrefaction processes and are always accompanied by unpleasant, pungent and acrid odors, leachate, diseases and "contaminated environment".

This is due to the fact that during the transformation process of organic matter oxygen is being consumed instead of being build.

This leads primarily to degassing and the formation of hydrogen sulfide, which spreads the typical foul odor of rotten eggs.

The transformation from anaerobic into aerobic conditions does not only result in reduced smells and avoidance of oders, but also leads to a valuable product:

Decentraliced „Waste Management“, the basis of our philosophy

- Our concept is future-oriented.
- As traffic increases from year to year, it is nearly impossible and unnecessary to transport waste over long distances.
  "As decentralized as possible, as central as absolutely necessary".
- To use existing places and bring them to the most effective level of waste treatment is our target. The conditions vary from place to place, we analyze the needs of different locations and determine the type of waste treatment for each location.
- To achieve this target is an effective waste separation of the residual waste is absolutely necessary

2 types of waste: organic waste Inorganic waste

- Organic waste is the starting material for treatment with TERRA microorganisms (T-Mo)
- Organic wastes contain materials which originated from living organisms. There are many types of organic wastes and they can be found in municipal solid waste , industrial solid waste, agricultural waste, and wastewaters. Organic wastes are often disposed of with other wastes in landfills or incinerators, but since they are biodegradable , organic wastes are suitable for composting and land application.
- Organic materials found in municipal solid waste include food, paper, wood, sewage sludge, and yard waste . Because of recent shortages in landfill capacity, the number of municipal composting sites for yard wastes is increasing across the country, as is the number of citizens who compost their yard wastes.
- The power of the micro-organisms reintroduces the organic waste into the natural cycle - as compost, natural fertilizer and used water for watering in agriculture.

The power of microorganisms

There are more microorganisms and fungi that live in a handful of healthy forest soils, as humans on the earth.

The totality of the microorganisms provide by their interaction for harmony and compensation for misguided phases in nature.

After years of empirical research, it is possible to somehow influence the microorganisms to naturally stimulate them into a variety of tasks.

TERRASYSTEM has spent many years working with microorganisms that promote or accelerate aerobic decomposition and thus promote anaerobic decay prevent disturbing odor (stench)

Compost

Composting is the decomposition of plant remains and other once-living materials to make an earthy, dark, crumbly substance that is excellent or adding to houseplants or enriching garden soil.

Compost improves soil structure, texture, aeration - increases the soil's water-holding capacity.

Compost loosens clay soils and helps sandy soils retain water.

Improves soil fertility and stimulates healthy root development

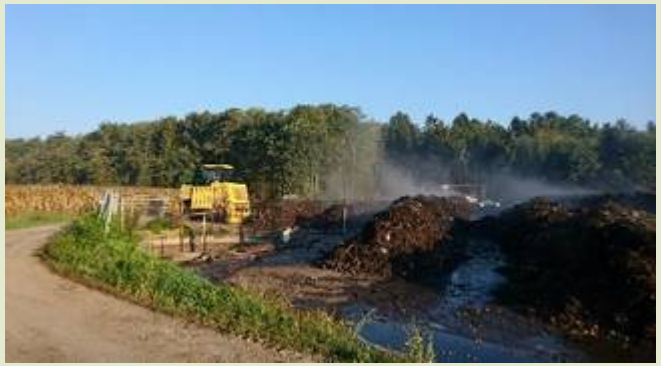
Organic matter provides food for microorganisms - nitrogen, potassium, and phosphorus mineralized

T-Mo - Aerobic composting

By composting or rotting is meant the degradation of organic material with the help of microorganisms under supply of oxygen (aerobic). The end product of this process is compost.

Since open rental composting is a very sensitive area in the field of economy, sustainability and environmental protection, great importance must be attached to minimizing odor emissions through optimized and proper process management. The controllable process parameters are:

Composition of the starting material
Of structural material
Mixing of the material
Additives of aggregates
oxygenation
Water balance (rent humidity)
rotting temperature
rotting duration



Since a lack of oxygen leads to anaerobic conditions (rot) and it comes to subsequent odor, it is always important to ensure adequate ventilation. This is achieved by a corresponding proportion of structural material in the starting mixture (air pore volume) and by regular conversion processes.

Sufficient moisture content is required for both temperature-induced sanitation and microbial degradation. The compost must not dry out or be too wet during the composting process.

Our vision

From waste to fertile soil

From the desert to the fertile acreage

Waste is a treasure !

Organic waste

valuable raw material for fertile soil

In 75 days food scraps and paper products are transformed into a nutrient rich soil amendment = "Black Gold"!

The finished product "Black gold" is used by fields and in organic farming applications to grow more food and trees.

Using compost means pesticides aren't required, soil fertility is increased, water is conserved, and soil erosion is mitigated.

T-Mo - Animal manure into fertilizer

Turn manure of the chickens, swine, cattle, horses or leave into compost .

" Animal Manure is a low-cost fertilizer and a wonderful way to utilize nutrients instead of creating a pile that is not getting used and be harmful to water quality".

If you add animal manure to your soil, you'll not only improve the quality of the soil but you also won't need to water your garden as much.

All animal manures are good sources of nitrogen, phosphorous, potassium and other nutrients that plants need to thrive. But the amounts of each nutrient are highly variable depending on the animal's diet, and the amount and type of bedding used.

T-MO – Slurry additive

Slurry additive for all animal species.

Aerobic treatment (rotting) of manure and manure to valuable humus fertilizer, homogenization, sanitation, inconspicuous odor, good plant tolerance, less flies.
Manure is transferred to the aerobic state, better stable climate, fewer flies
Homogenization of manure, inconspicuous smell
Occasional stirring is enough
No burns, even in hot weather
Nutrients are preserved and are available to the plant
Humus structure in the soil
No water pollution

T-Mo - Reduction of Odor

„T-MO“ contains various organic acids due to the existence of microorganisms such as lactic acid bacteria that secrete organic acids, enzymes, antioxidants, and metallic chelates.

Odor substances are of weak alkaline represented by ammonia and will be neutralized with organic acids in „T-MO“ solution.

The enzyme and antioxidants reduce odor in a synergistic way, a sort of buffer effect.

The metallic chelates react with odor substances instantly, change them into non-odor substances and reduce them quickly.

Organic matter produce odor when they are putrefied with putrefactive type of microorganisms.

When „T-MO“ is applied to a local environment and starts to dominate it with its fermentation type of microorganisms, they will stop the process of putrefaction and move towards a fermentation process.

Thus if „T-MO“ is applied to the treatment of waste water, the treatment takes place in this fermentation system with odor fairly well suppressed.

Restoring and Recycling Water

The TERRASYSTEM technique provides cost-efficient approaches for dealing with:

Surface water: remediation of lakes and water bodies

Ground water: purification and decontamination of wells and drilled wells (e.g. from poisoning)

Waste water: sewage treatment units (decentralized smaller units, but also central sewage plants).

Faeces management (sanitary installations and recycling by aerobic composting)

Biogas Production – Anaerobic process

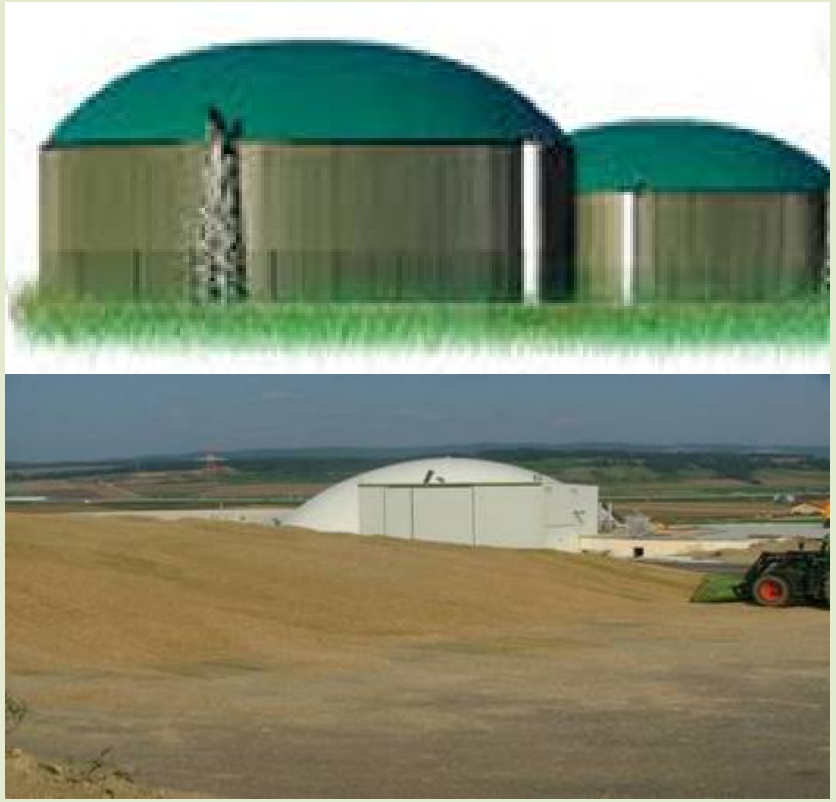
Conversion (decomposition) of organic waste into gas and thermal

Size depending on the input material as well as the future calculations

Economic

Environmentally friendly

Electric Power to the grid or other use heat for cooling



Biogas Production

Biogas typically refers to a mixture of different gases produced by the breakdown of organic matter in the absence of oxygen. Biogas can be produced from raw materials such as agricultural waste, manure, municipal waste, plant material, sewage, green waste or food waste. Biogas is a renewable energy source.

Biogas can be produced by anaerobic digestion with methanogen or anaerobic organisms, which digest material inside a closed system, or fermentation of biodegradable materials.[

Biogas is primarily methane (CH_4) and carbon dioxide (CO_2) and may have small amounts of hydrogen sulfide (H_2S), moisture and siloxanes.

The gases methane, hydrogen, and carbon monoxide (CO) can be combusted or oxidized with oxygen. This energy release allows biogas to be used as a fuel; it can be used for any heating purpose, such as cooking. It can also be used in a gas engine to convert the energy in the gas into electricity and heat

Biogas can be compressed, the same way as natural gas is compressed to CNG, and used to power motor vehicles. In the United Kingdom, for example, biogas is estimated to have the potential to replace around 17% of vehicle fuel. It qualifies for renewable energy subsidies in some parts of the world. Biogas can be cleaned and upgraded to natural gas standards, when it becomes bio-methane.

Biogas is considered to be a renewable resource because its production-and-use cycle is continuous, and it generates no net carbon dioxide. Organic material grows, is converted and used and then regrows in a continually repeating cycle. From a carbon perspective, as much carbon dioxide is absorbed from the atmosphere in the growth of the primary bio-resource as is released ,when the material is ultimately converted to energy.

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