





Changing wasteland to oases



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PROCESSING WASTEWATER SLUDGE INTO PREMIUM ORGANIC FERTILIZER



The water purification process generates precipitate, a sludge which accumulates in the settling pit and contains large amounts of heavy metals and other harmful substances.

Long-term storage and processing of such sludge often leads to dangerous environmental pollution.

Our solution uses Fermentstart, a unique product coupled with a technological process to transform sludge into dry organic fertilizer within 5 to 9 weeks.

- Short processing times prevent unwanted leakage of sludge
- Only organic materials are used, making the final product 100% organic
- Bacteria contained in the fertilizer will revitalize soils depleted by overfarming and use of chemical fertilizers



The purification process generates precipitate (activated sludge from aeration and digestion). Millions of tons of these sediments are transported to settling pits, where they. No recycling solution has yet been found, hence the conditioning equipment is still in operation, but the precipitate continues to accumulate.

When sewage is cleaned with traditional technologies, the sludge is deposited in the vicinity of the treatment plant, where it is dried. Its original humidity is 95 to 98%, but the precipitate retains moisture to such an extent that even after a whole year of drying, the moisture content is still 85%.

With existing technologies, sediments develop with an unpleasant odor and a large number of pathogens including viruses, coliform bacteria, Koch's bacillus, eggs and worm larvae and salmonella. It is obvious that the large-scale drying of this sediment can result in environmental pollution, and the sediment is not suitable for use as a fertilizer. This results in polluted and strained fields and unbalanced ecosystems.

Our company offers solution to this problem: Our unique technology transforms sewage sludge into organic compost fertilizer, using the Ferment-Start probiotic product and several other organic substances.



Sludge treatment using Ferment Start



Resulting organic fertilizer made from sewage sludge

The resultant fertilizer is a premium organic product. Its beneficial bacteria content makes it a life-giver for soils depleted and strained by chemical fertilizers. Regular use of such fertilizer for 5 years will result in an increase in yields of up to 25% as well as the re-cultivation of arable land.

Using our Fermentstart product together with our unique technology will bring you the following advantages:

- Deals with the accumulation of sewage sludge
- Up to 6x shorter processing time when compared to other waste processing technologies (composting plants, worm-based processing), which minimizes the risk of leakage
- Levels of heavy metals are substantially lower than the specified limits, tthis also applies to particularly dangerous substances such as lead, mercury, arsenic and fluorine
- Revitalization of arable land
- The resulting production cost of the fertilizer is substantially lower than for other fertilizers with the same concentration of essential nutrients

Results of expert analysis in an accredited laboratory:

Input values of the waste sludge before starting the fertilizer production process:

| Indicator | Mass Unit |
|--------------------------------|------------------|
| Ash (residual after annealing) | 52,1 % |
| Arsenic (As) | 15 mg/kg |
| Chromium (Cr) | 49,8 mg/kg |
| Lead (Pb) | 33,4 mg/kg |
| Kadminum (Cd) | 1,5 mg/kg |
| Copper (Cu) | 243 mg/kg |
| Zinc (Zn) | 750 mg/kg |
| Nickel (Ni) | 31,6 mg/kg |
| Mercury (Hg) | 1,9 mg/kg |
| PH(CaCl ₂) | 7,7 - |

Results of Velmix fertilizer analysis produced using Fermentstart and our technological process

| Indicator | Mass Unit |
|---|------------------|
| Ash (residue after annealing) | 74,6 % |
| Arsenic (As) | 4,79 mg/kg |
| Chrom (Cr) | 44,1 mg/kg |
| Lead (Pb) | 15,6 mg/kg |
| Kadminum (Cd) | < 0,39 mg/kg |
| Copper (Cu) | 28,3 mg/kg |
| Zinc (Zn) | 95,2 mg/kg |
| Nickel (Ni) | 23,7 mg/kg |
| Vanad (V) | 53,6 mg/kg |
| Cobalt (Co) | 9,19 mg/kg |
| Beryllium (Be) | 1,03 mg/kg |
| Mercury (Hg) | 0,548 mg/kg |
| Phosphorus (P) | 3220 mg/kg |
| Phosphorus (P) | 2,23 % |
| Magnesium (Mg) | 2000 mg/kg |
| Magnesium (Mg) | 0,760 % |
| Potassium (K) | 1720 mg/kg |
| Potassium (K) | 0,64 % |
| Calcium (Ca) | 18100 mg/kg |
| Calcium (Ca) | 3,34 % |
| Sodium (Na) | 0,185 % |
| Nitrogen (N) | 1,42 % |
| Organic, incinerated (Cox, organic carbon) | 22,3 % |
| PH (CaCl ₂) | 5,59 - |
| P ₂ O ₅ | 5,1 % |
| K ₂ O | 0,77 % |
| CaO | 4,68 % |
| MgO | 1,26 % |

These excellent values are only achieved when Fermentstart is used together with our technological process.

When manufacturing our organic compost fertilizer, we strive to make it very easy to use, with a high humus content and nutrient rate, hygienic and simple to transport, with a long storage life, and manufactured using the same machinery as common fertilizer. The fertilizer can also be made into granules. All this is possible when using **Ferment-Start**.

The same fertilizer can be made using cow manure, horse manure, sheep manure or bird droppings.

The necessary processing time is 35 to 60 days.

Advantages

Zero content of pathogenic organisms, live parasites, worm ova or larvae, minimal content of heavy metals and hazardous substances (see above), environmentally safe.

Benefits

The conversion of sewage sludge into organic fertilizer carries a cost of 35-55 EUR per tonne, depending on the country of production and composition of the sludge. The financial benefits of this method are obvious, even when the increased dosage compared to mineral fertilizers is taken into account.

Documentation



