

E R G O F I T O I N A C T I O N

Give Nature What Nature Wants

## Waste Water Remediation



ERGOFITO

[www.ergofito.co.za](http://www.ergofito.co.za)

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## CLEANING WASTE WATER WITH ERGOFITO

Cleaning waste water is the action of separating water from everything else.

Filters, chemicals, bacteria all contribute or attempt to perform the above mention task in a safe and economical way.

The pollutants are numerous, from sewage, fats, grease, and oils to organic matters.

**Ergofito Aqua GW** operates in any organic pollution situation, either in nature such as in the open sea, lakes or rivers or in close filtering systems such as sewage or effluents treating plants or in extreme cases lagooning.

The cleaning action by **Ergofito Aqua GW** is biological. It acts by decomposing all organic matter into CO<sup>2</sup> and Humus, which is beneficial to life.

Although each application may require a different approach e.g. dairy effluent, Animal and human sewage, the principle of depuration remains the same.

**Ergofito Aqua GW** is an aerobic group of bacteria and thus requires an aerated tank to operate in if used in a treatment plant.

E 01: Equalization tank

E 5: Circulating pump

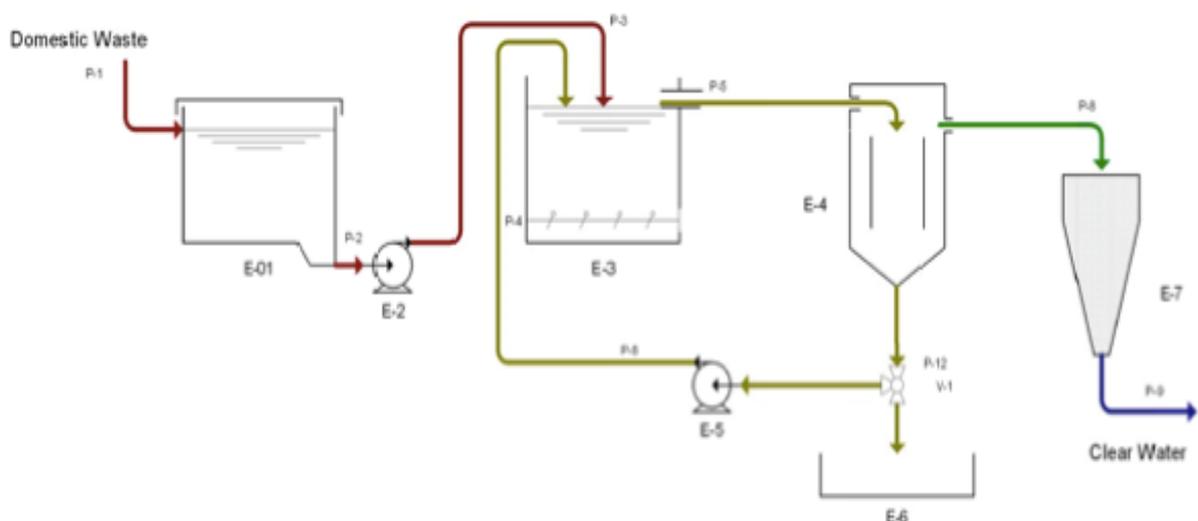
E 2: Pump

E 6: Surplus sludge recovering tank

E 3: Aeration tank

E 7: Mineral filter (optional)

E 4: Sedimentation tank



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### **Principle of operation:**

The effluent source can be raw sewage, animal waste, and organic waste from factories or simply water from a polluted pond or from aquaculture to give but a few examples.

The said effluent is entered into an equalization tank, E01, which is a holding tank. Before it enters the equalization tank, a grid to separate solids and floating matter is recommended.

The effluent is then pumped via pump E2 to the aeration tank E3. The aeration tank is designed to maintain adequate oxygenation levels in the water (between 2 and 8 mg/L) If the effluent is sewage, 2mg/L is sufficient, for trout aquaculture effluent 8mg/L is required.

**Ergofito Aqua GW** is inserted in the aeration tank. Circulating pump E5 circulates the effluent between aeration tank and the sedimentation tank E4.

An active mud will form at the bottom of the sedimentation tank as the COD and the BOD is transformed by **Ergofito Aqua GW** into CO<sup>2</sup> and active mud.

Once the active mud reaches a level of 60% (from Imhoff tube test) the plant becomes a powerful filter.

Any excess mud created after the 60% is dropped in surplus tank E6 is an active fertilizer for any crop and can be used as is for agriculture (provided there are no heavy metals in the effluent).

It is recommended to calculate the size of the tanks for a retention time of **16 hours**. This will ensure that water exiting the treatment plant can be used in agriculture or flushed into a lake, river or sea.

The retention time of 16 hours is typical for a sewage treatment plant, for other effluents it will be calculated according to the COD and the BOD of the said effluent. It can vary from just flow through to any retention time up to 16 hours.

If an effluent requires longer than 16 hours, lagooning may be the only solution.

If at the output of the above filter the clarity of the water is not of very high standard, or the water is contaminated with heavy metals, then an additional mineral filter will need to be added E7.

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This mineral filter will ensure an extremely low COD as well as heavy metal retention. The mineral filter is composed of Fullerenes and has the highest retention of any mineral filter. The mineral filter can be backwashed thus there is no need to replace the filter itself.

In the event of heavy metal contamination in the treated effluent when the mineral filter is used, all backwash water and residue from the mineral filter can only be utilized for heavy metal recovery for commercial purpose or disposal.

**Ergofito Aqua GW** is able to decompose simultaneously many organic compounds such as fat grease and oil often found in sewage domestic plants.

### **DOSAGE:**

The amount of **Ergofito Aqua GW** required per cubic meter is directly dependent on the COD and the BOD of the effluent. Generally, we apply 5 grams per cubic meter per day for the first 10 days or until the active sludge is formed and attains 60% (from the Imhoff tube measurement).

Once the 60% is attained, approximately 2 grams per cubic meter per day is required.

The above quantum is a typical dose for a city sewage treatment plant.

The dosage will need to be adjusted according the local conditions.

The active sludge will be smell free and pathogen free humus.

This humus can be used in agriculture and compost production.



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