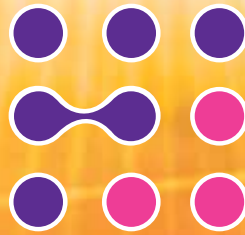


ODORIENT

Biological Odor Removal System



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ODORIENT

ODORIENT is a special bacteria culture which provides degradation of organic waste efficiently even in low oxygen environment.

In the laboratory, ingredient bacteria have been chosen especially from the ones, which have the highest treatment specifications, and have been produced without performing any genetic modification.

ODORIENT ingredient bacteria have been proven genetically that it is not harmful to environment, mankind and animals.

ODORIENT bacteria can adapt to the most difficult conditions to produce a variety of enzymes which degrade organics fast.

These adaptation abilities provide an efficiency which none of the chemicals are able to reach.



WHAT ARE BACTERIA?

Bacteria are single celled life forms which can not be observed with eyes.

Approximately 40 million bacteria cells can be found in one gram soil.

99% of these organisms we live within our environment, every surface that we touch constantly, in our internal organs, on our skin, even in our mouth, are not harmful and live with us in harmony.

Bacteria reproduce quickly. Therefore, they quickly adapt to environment they have been to.

Due to this adaptation skill, bacteria can exist even in the most difficult conditions that a human can imagine. Bacteria can be often seen extreme environments such as gastric acid whose pH 1 or 90 °C water.

These organisms are the smallest constituents of ecosystem which are the most important part of waste recycling system.

WHAT ARE THE BACTERIAL PRODUCTS?

The world started to use new and environmentally friendly bacterial products which are amongst new and eco friendly biotreatment product line. Unlike chlorine based chemicals, essences and disinfectants, they are relatives of bacteria we live within.

For example; one of the bacteria -*Bacillus licheniformis*- in **ODORIENT**, has been chosen from 250 bacteria, because it is the fastest bacteria that produce more enzymes-amongst other, which digest organics fast.

Under normal conditions, in a fat trap or septic tank, it is very unlikely that such bacteria reproduce by itself. Therefore, bacteria which have not been modified genetically in laboratory, have been chosen regarding its high quality specifications, have been added to the environment to start bioremediation.

Thanks to **ODORIENT**, once millions of scientifically chosen bacteria have been applied to cesspool or septic tank, organic degradation will start immediately and residues will vanish and malodor will be gone.

HOW BACTERIAL PRODUCTS WORK?

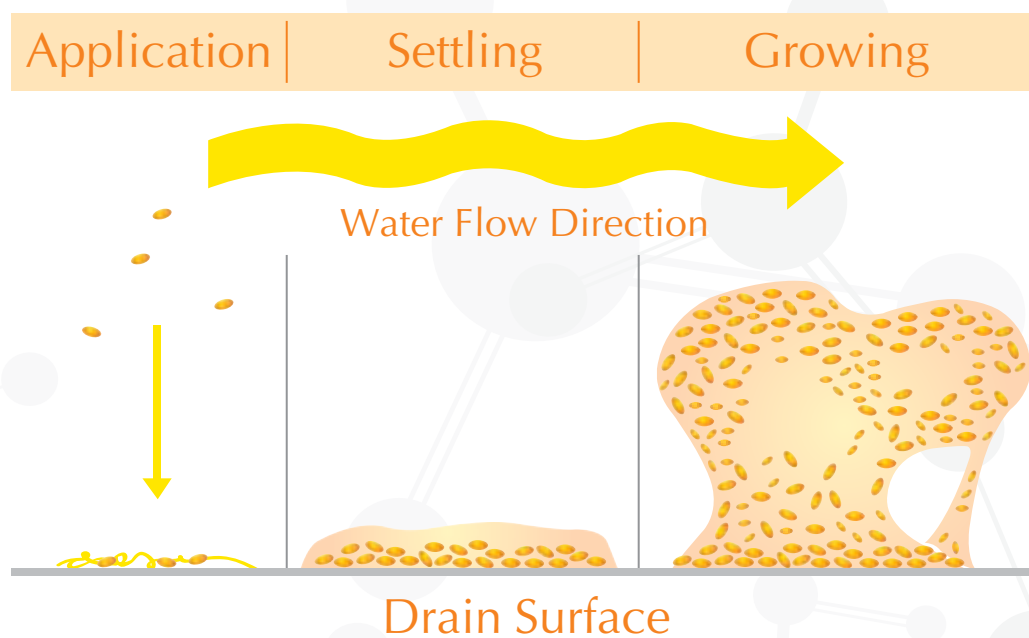
7 types of bacteria in **ODORIENT**, after produced as pure culture, they become spores under suitable conditions and stay in a "sleep mode". To activate, applying them to suitable conditions is enough. There is no waiting period or dilution needed. When **ODORIENT** unique formula is applied to the tank, bacteria are activated and they start to digest organic wastes on the first day. When it is preserved with sealed lid, it stays in "sleep mode" along with its shelf life and the product does not lose activity.

When **ODORIENT** is applied regularly to organic waste drains and septic tanks, formations called biofilm occur where it is applied, and bacteria reproduce continuously in the biofilm. These formations cover pipe, cesspool and septic tank surfaces like a film and provide bacteria a suitable place to reproduce.

Regular usage of bacterial product, makes these biofilms stronger and by reaching to end points in plumbing system, decreases problems that can occur.

ODORIENT bacteria living in these biofilms prevent the settling of different types of bacteria which form malodors and stop blocking and thickening and supply continuous flow.

Formation of Biofilm*



* Regular application of bacteria to the drains, settle in most suitable place for themselves, continue to oil removal and get colonised. The biofilms grow towards water flow direction so that they proceed as if a treatment system works in your plumbing system.

CESSPOOL AND SEPTIC TANKS

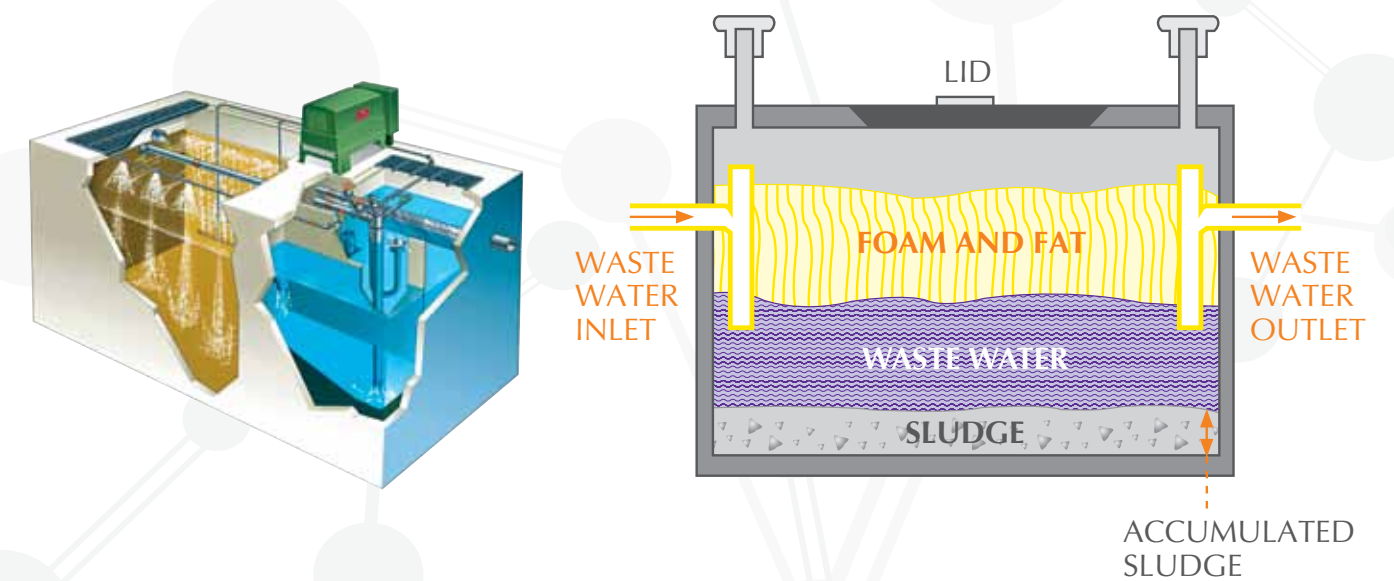
Cesspools and septic tanks, which do not have aeration system and have relatively less dissolved oxygen, accommodate anaerobic bacteria that produce H_2S gas and live under anoxic conditions.

Furthermore a set of solid organics and fats carried by waste water, blocks the pipes by thickening, or they block the contact of waste water with the air and this favors to form more anoxic environment. This leads to increase in the number of flies, overflows and malodor.

Increasing decay in anoxic environment causes to accumulate H_2S -very poisonous gas-in closed area and threatens public health.

Removal of H_2S , in such a big plant like municipal septic tank, may be solved with the methods like using inorganic salts or better ventilating of lines. Though these expensive methods require more technical staff for application.

For a septic tank to increase microorganism activity; sugar, blood, animal organs etc. organics are used. So they are energy source for all kinds of organisms and they will favor reproduction of all (anoxic, anaerobic etc.) and will not have an effect on malodor or organic degradation.



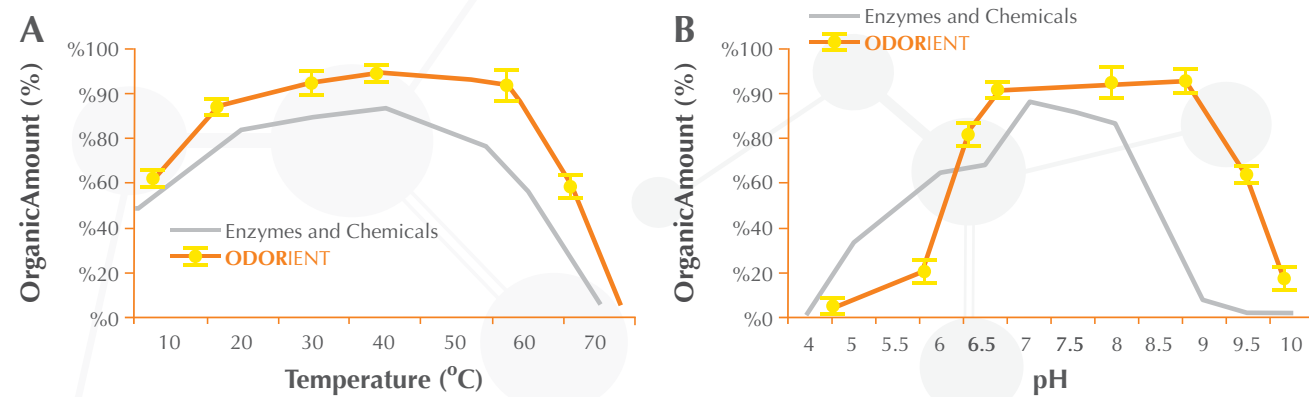
ODORIENT AND BIOTREATMENT

Fragrances or chemicals, which do not include “living activities” such as enzymes, work as long as they are suitable to practiced conditions, therefore, they do not work under every condition with the same efficiency.

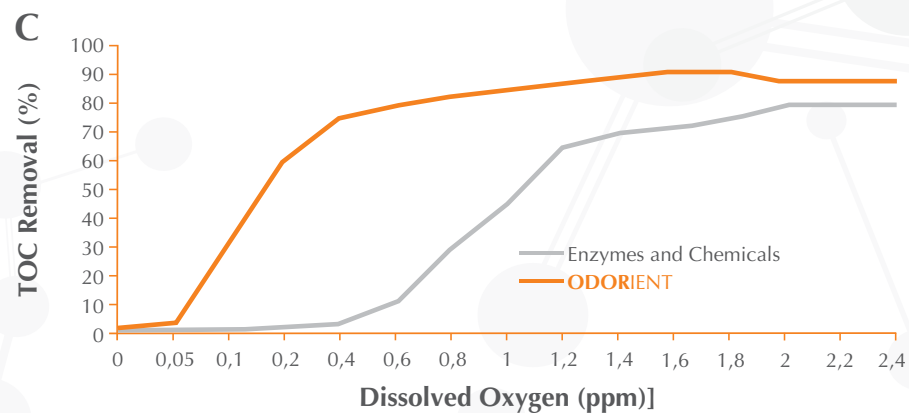
As for bacterial products, they produce necessary enzymes themselves to perform digestion of organics, within wide working borders, by adapting to every condition in time. So that working efficiency is higher.

ODORIENT includes bacteria which conduct efficient organic removal even in low oxygen conditions and special enzymes produced by these bacteria.

It provides sustained performance in organic treatment, prevents reproduction of anaerobic bacteria which cause malodor.



As you can see in the graph above, enzymes and chemicals lose their efficiency under nonsuitable pH values and temperature. On the contrary, **ODORIENT** bacteria can adapt to the environment fast and do not lose efficiency like enzymes and chemicals under extreme conditions.



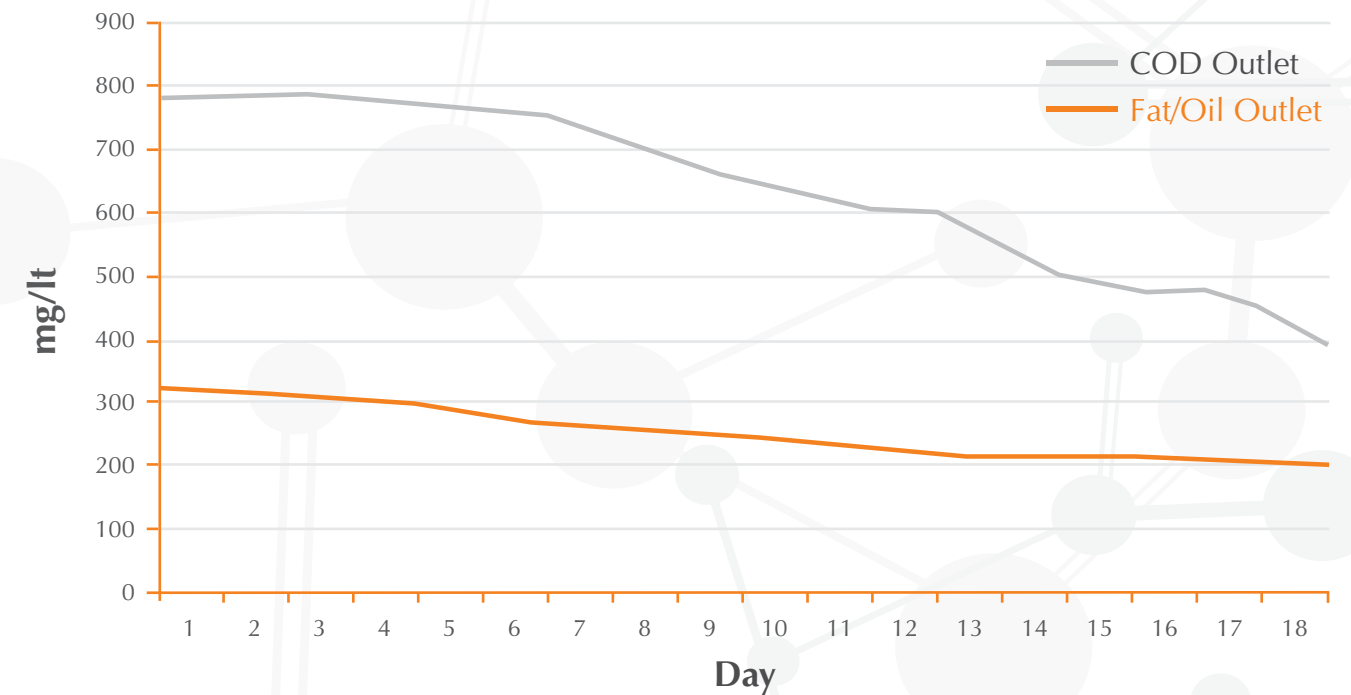
In the figure it is observed that **ODORIENT** performs organic carbon removal even in very low 0,1ppm dissolved oxygen concentration and in a cesspool which does not use **ODORIENT**, degradation starts only in level 0,4 ppm.

As **ODORIENT** applied to the septic tanks and cesspools, first the enzymes dissolved the hardened parts of the accumulated organics and help bacteria to penetrate. So bacteria can reproduce and remove organics at every level of the tank.

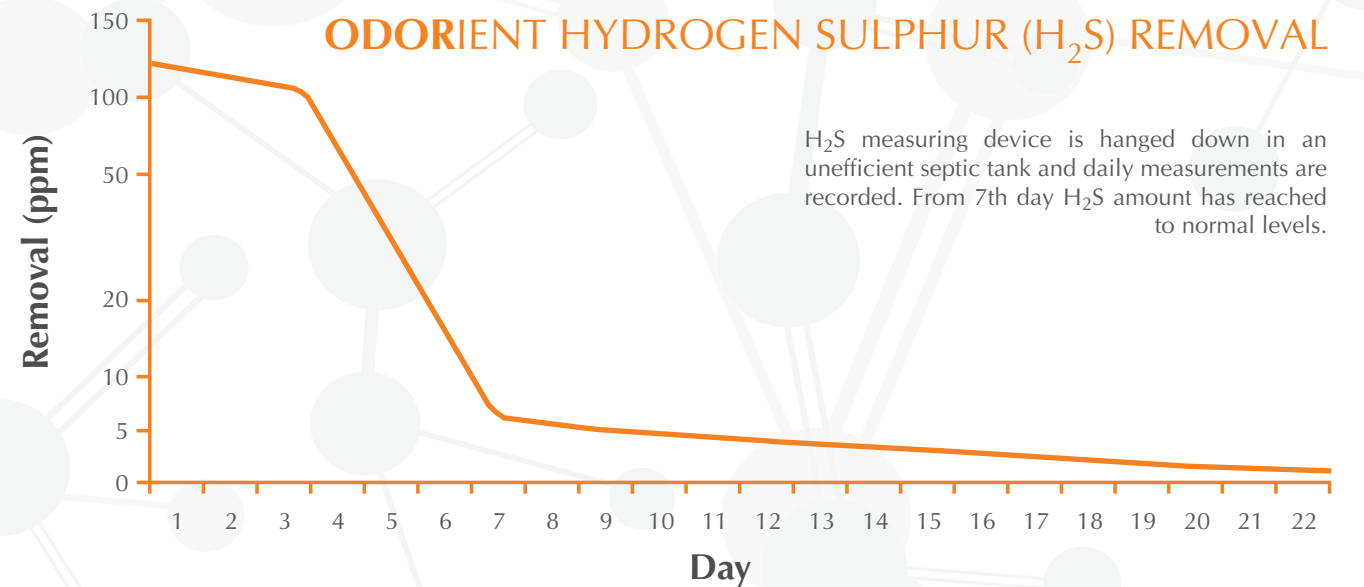
Bacteria starts to form biofilms immediately in drain systems, in pipes, in septic tanks and cesspools. At the same time, they start to digest the organics.

So they inhibit the reproduction of anoxic bacteria which produce malodor and delay the emptying time of the septic tank by removal of the accumulated sludge.

ODORIENT COD AND FAT REMOVAL



In the graph above, after continuous application of **ODORIENT** for five days, you can see the removal of COD and fat from the waste water. As the time passes, the efficiency of removal will increase gradually.



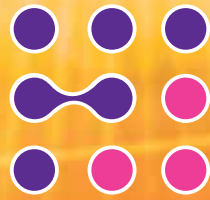
H₂S measuring device is hanged down in an unefficient septic tank and daily measurements are recorded. From 7th day H₂S amount has reached to normal levels.

ODORIENT

- It stops cloggings in plumbing system.
- Stops the malodor formation in manholes.
- Stops hydrogen sulphur (H₂S) gas production.
- Stops clogs caused by organics.
- It guaranties the flow of pumps and pipelines.
- It prevents overflow.
- It decreases the need for mechanical cleaning.
- It is friendly to environment and people.

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