



SEPTIC GOBBLER® PRESENTATION

Septic Gobbler® is a Partner
company with Gobbler Ltd.

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THE PROBLEM

We have to accept that everybody must visit some form of toilet every day but in general, unless they're using a hole in the ground... after flushing, nobody really knows... or cares... where it goes!

Around the world waste water and sewage are stored and treated in different ways. Water Companies vary in their treatment methods and disposal, many now becoming increasingly detrimental to the surrounding fragile Eco-systems. Health hazards abound from raw sewage at public beaches and cherished holiday locations.

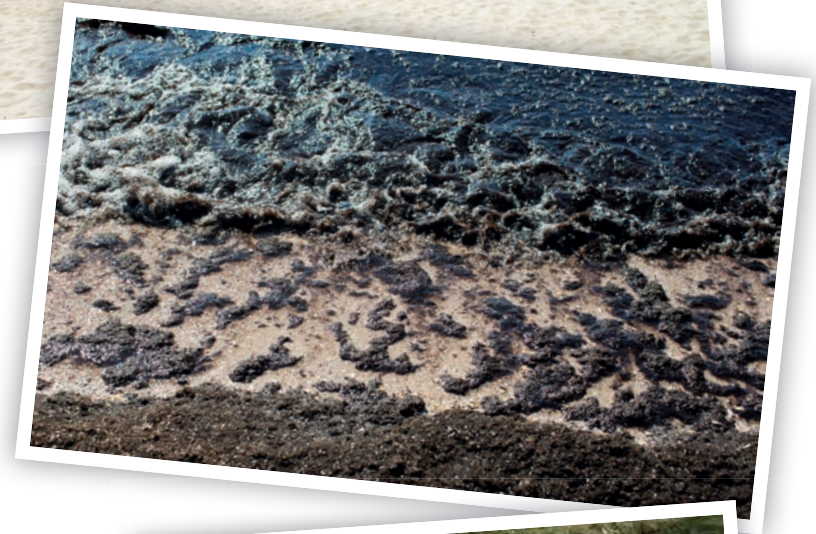
Legislation is becoming ever more stringent regarding raw sewage dumping in Rivers and lakes, spewing from outfall pipes and silently seeping underground into the sea. It has to stop.



Nobody is exempt... Islands, rich or poor, near or far, large and small of numerous terrains, often have limited options for sewage plants. The only alternative being Septic Tanks, or Cess Pits. They can be, plastic, GRP, concrete boxes or whatever, buried underground and piped from the house, but all suffer the same fate... sludge and blockage.

Over the years, multi-million gallons of effluent from thousands of homes creates a build-up of sludge. With nowhere to go the effluent overflow permeates the substrate contaminating the ground water. Eventually reaching the ocean, as it exits the pathogen loaded toxic, odorous soup is highly detrimental to aquatic life, sea corals, sea grasses and mangroves. The life blood of the island community, namely Tourism, is then instantly at risk.

Gobbler® has its finger on the pulse of the ever growing pollution around the World, no matter the type. When problems manifest we research for the answer. Critically the solution must be *non-toxic, affordable, fast, efficient and permanent.*



THE SOLUTION:

Septic Gobbler® is the natural, biological solution to reducing or eliminating costs and solving the problems faced.

The usual approach in waste water plants has been to add plant capacity with larger tanks, more air, etc., and to a degree this is sometimes necessary. Extremely costly, it involves enormous capital expenditure not normally sufficiently budgeted, yet still with a resulting increase in sludge handling and expenses. It is important to note that the physical aspects of a plant do not digest the waste. It is the job of enzymes produced by bacteria and micro-organisms.

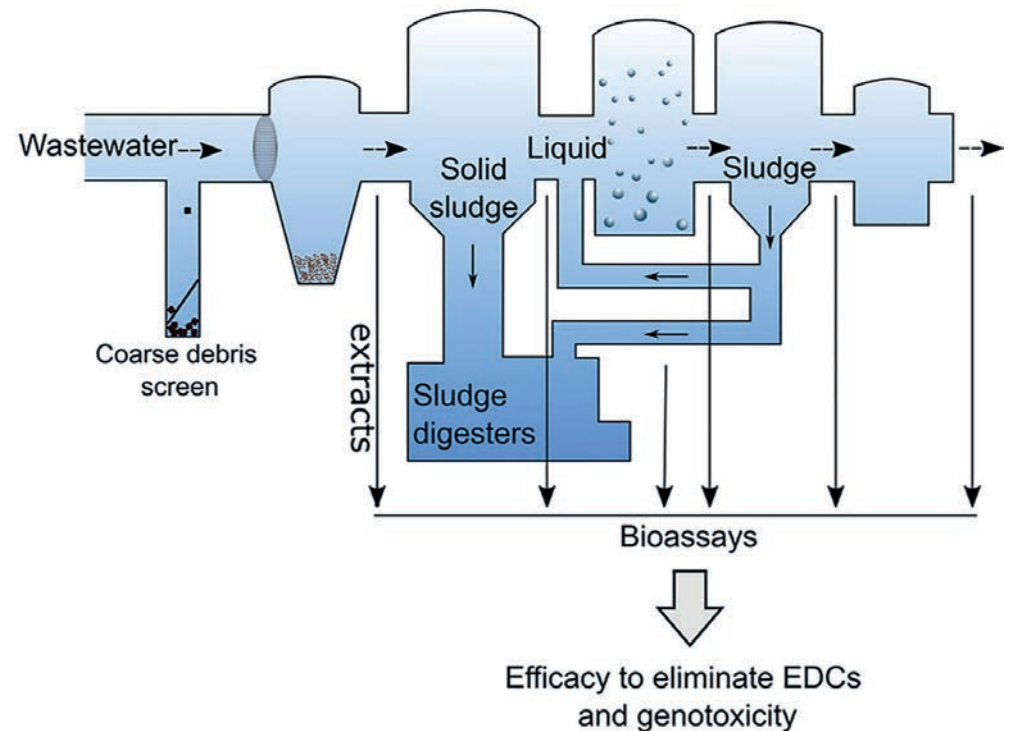
The best point of attack is to reduce the volume of solids thereby, effecting an immediate saving in haulage costs.

This is done by bio-augmentation of the existing micro-organisms through addition of biologically active bacterial seed cultures which produce massive amounts of enzymes on a regular preventive maintenance schedule. Bio-enzyme bacterial augmentation means helping mother-nature do a better job microbiologically, rather than from continued use of chemical additives. Just like an aspirin that relieves some cold symptoms, but does not cure the cold, chemical additives temporarily relieve the symptoms of poor digestion, but do not cure the problem. So what exactly are biologically active seed cultures?

Biologically active cultures:

Biologically active seed cultures are microbial strains of naturally occurring micro-organisms that have been isolated and trained to produce large amounts of digestive enzymes when introduced into a waste system. The special eco-friendly bacterial enzyme producing strains in Septic Gobbler® are engineered to be thousands of times more active than those found in nature and are chosen for their natural resistance to harsh chemicals and detergents. This is the reason why proper enzyme producing microbial strains in a product are so important. They must be the right amount and of the proper kinds.

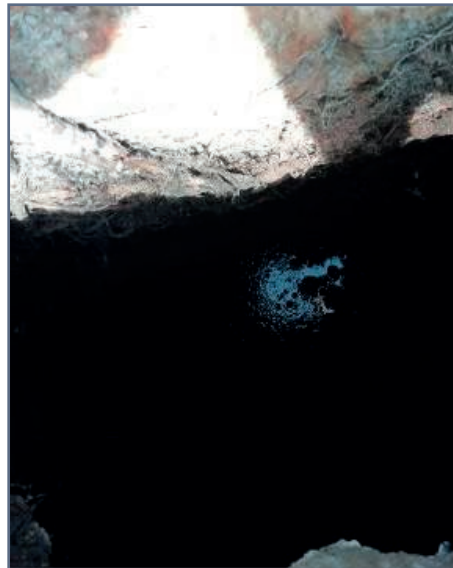
Our bacteria are uniquely derived from South African soil cultures, giving them a natural home ground performance advantage and therefore metabolize faster, reproduce at superior rates and live for longer. Every bacterium in Septic Gobbler® is a miniature powerhouse enzyme factory which produces enzymes 24 hours a day. It is the main thrust of biologically active seed cultures. Regular dosing of sewer and waste water plants ensures dominance over naturally occurring less active bacteria for the ultimate results.



THE PRODUCT

Potent enzyme producing biological, non-toxic treatment for septic tanks, septic systems, and drain lines which digest solid waste, eliminates odour and keeps systems flowing naturally using Green Enzyme Technology.

A proprietary treatment of specially selected bacterial and microbial strains which produce massive concentrations of digestive enzymes when introduced into wastewater and sewerage environments.



INTRODUCTION & CHALLENGES

Sludge handling is the number one problem for waste water treatment plants. What enters the waste water plant has to exit the plant at some time and some place.

Hauling and disposal, not to mention that the huge carbon footprint of offsite haulage costs. Sludge handling costs vary from tens of thousands of \$'s in small plants, to hundreds of thousands or even several million \$'s in larger facilities, on a monthly basis. However, it needn't be this way, the answer is here for all to see.



The Solid Sludge Crust



Notice the vegetation growth through the sludge!!



Septic Gobbler at work. Notice the white areas indicating that the sludge is being digested



More white more digestion!!!!



Notice that there is no sludge between the sludge bulk and the wall of the trench



Sludge being treated. Notice water no sludge



This area of the trench sludge free.

MECHANICAL EQUIPMENT FAILURE:

As sludge builds up in the system the waste water viscosity becomes much thicker which immediately puts enormous strain on all the mechanical machinery in the sewerage plant. Component failure is the result from the extra torque they endure.

Equipment repairs in these instances are high capex items, mostly unplanned and extremely expensive, thousands of \$'s in small plants, to hundreds of thousands or more in larger facilities, on a monthly basis.

HIGH COSTS ELIMINATED:

An incorrectly functioning septic or main sewer system can be very costly.

With the increased prevalence of bleaches, biocides and anti-bacterial agents in many of today's consumer products, the naturally occurring bacteria, microbes and enzymes are easily killed off and the natural balance is destroyed.

Where traditional enzyme and bacterial products are obliterated, Septic Gobbler® powder, enhanced with its nutrient pack, is, incredibly, engineered to be naturally tolerant of harsh chemicals and detergents. Regular dosing with Septic Gobbler® is extremely cost effective and eliminates the need for expensive plumbing companies, honey suckers and waste companies, not to mention dangerous chemicals and the harm they cause the environment.



Regular proactive maintenance dosing with Septic Gobbler® powder costs a fraction of traditional reactive methods and is an essential maintenance item.

Unless they're totally collapsed, Septic Gobbler® eliminates the need for costly replacement of cesspits and septic type structures.

SEWER OVERFLOWS & SPILLS:

When sewer drain lines get blocked, raw sewerage can spill out creating a massive potential health hazard.

It must immediately be treated to contain possible cholera and typhoid outbreaks. Septic Gobbler® powder can simply be sprinkled over sewerage spills to contain the problem, while immediately helping to contain odours.

Bad pathogens are controlled through a scientific process known as Competitive Exclusion. Sewer line blockages are mostly caused by Fat, Oil and Grease (F.O.G.'s). Sewer Gobbler® is ideal for shock dosing into the affected sewer lines to biodegrade the cause of the problem quickly and effectively.

For top end maintenance, BIO-BLOCKS are available for suspending in cisterns, they release enzymes when flushing. Replace when depleted.



ADVANTAGES

- ✓ Eliminates foul odours.
- ✓ Bio-remediates and digests waste.
- ✓ Naturally restores system health.
- ✓ Keep drain and septic lines flowing freely.
- ✓ Treats sewer spills and overflows.
- ✓ Massive cost savings over physical and chemical methods.
- ✓ Simple to dose, easy to maintain.
- ✓ Reduces pathogenic disease causing organisms.

ELECTRICITY COSTS:

In addition to the mechanical strain sludge causes, the electro mechanical plant systems run at a fraction of their intended efficiency, resulting in greatly increased utility bills and adding to the overall monthly costs of running a sewer treatment plant.

DOWNTIME:

With the problems caused by sludge build-up, mechanical failure is eventually guaranteed. It can result in the total non-operation of smaller plants or partial closure of larger plants for repairs. This in turn places severe operational loads and constraints on other sections of the plant which has a vicious knock-on effect which starts all over again in a continuing and downward spiral.

ODOUR POLLUTION:

The odour generated by sewer plants is enormous and can often be overbearing depending on the state of the waste. By design, or population expansion, sewer plants are often situated in residential or commercial areas, the foul odours generated can be unbearable.

This has an immediate and negative effect on perception of commerce and industry as well as deteriorating property value, not to mention quality of life for surrounding communities and businesses.

APPLICATION:

Application: Simply add the below dose to 2L - 5L of warm water and pour down basins, showers and baths or flush down toilets. Alternatively dose direct into the tank or cess pit and multi-treat as required. Ideally if in-house, dose after hours or at night.

SHOCK DOSE:

1kg of Septic Gobbler® per 1000 Litre of septic tank capacity.

MAINTENANCE DOSE:

100grams of Septic Gobbler® per 1000 Litre of septic tank capacity.
Repeat the above Maintenance Dose weekly until the necessary results are achieved.

FOR BEST RESULTS:

Use with Gobbler®'s full range of bio-enzymatic products which benefit each other as you use them. Save money and improve performance while reaping multiple benefits compared to traditional chemicals.

Avoid using disinfectants and harsh chemicals, these kill our beneficial micro-organisms and harm the environment.

TREATMENT PROBLEMS TO CONSIDER:

Large expenditures and challenges are not likely to decrease because of expanding population, fewer approved disposal sites, inflation, increased use of chemicals which add to sludge volume and deteriorating state of the sludge and waste, as well as ever tighter Regulations. There is an enormous consumer trend of increasing disinfectant properties of commercial hygiene, cleaning and personal care products. These disinfectants are transferred downstream and indiscriminately kill all bacteria, good and bad, which are needed for sewer plants to function correctly. Without good bacteria, sewer plants will grind to an immediate halt.

For major sewage plants and exit points where effluent diffuses to the sea, the correct application is Sewer Gobbler®, a sister product to Septic Gobbler®, but liquid. The bacteria is suspended in a transit fluid.

Each bacteria is a powerhouse to produce multi-billions of hungry enzymes per micro-mℓ.

AUTOMATED DOSING:

A challenge in any environment is the always unpredictable human factor. Precise and accurate dosing can be required on a per minute basis of mℓ quantities, hour by hour, 24 hours a day, 365 days of the year. When trying to administer in powder form it can become a physical impossibility, and product theft can be a reality in some environments. Sewer Gobbler® is uniquely available in liquid to overcome such problems.

Liquid is able to be precisely applied (mℓ squirted) using cost effective, highly accurate Advanced Dosing System, either 240v/110v or 12v battery backup. The system can be physically secured to eliminate the chance of theft. Once per month the bio-enzyme liquid (IBC) can be replaced for completely and reliable autonomy.

EFFLUENT DISCHARGE RESULTS:

Sewer Gobbler® gets results, period. In case study after case study on actual sewer plant effluent, it demonstrates massive reductions in COD's, Ammonia, Nitrate, Nitrite, Phosphate, E-Coli, Faecal Coliforms and odour in a very short space of time. These test results are freely available, please request them from Gobbler Ltd.

FEATURES OF PRODUCT:

- Hugely reduce sludge & solids
- Reduce E-Coli & Faecal Coliforms
- Massively reduce odours
- Reduce COD, BOD, Ammonia, Nitrates, Nitrites & Phosphates
- Reduce equipment repairs
- Reduce monthly running costs Application Rates:

Usage will vary according to the load on the sewage plant. Sewer Gobbler® can be added to any aerobic or facultative anaerobic zones of the sewage treatment process to augment the biological activity of the natural treatment process. The product should ideally be continuously dosed at the recommended rate and preferably added at the inlet point to the sewage treatment plant. **Please see separate Sewer Gobbler® presentation.**

DOSAGE RATES:

Shock Dose: 0.1% to 1% of total sludge volume (if required)

MAINTENANCE DOSE:

Concentrate: 1L – 5L per mega litre of daily flow rate

Super Concentrate: 100ml to 500ml per mega litre of daily flow rate

Powder: 100g to 500g per mega litre of daily flow rate

(Use with Pump Station Gobbler®, a first of its kind bio-enzyme sludge and waste digester which treats pump stations and the sewer lines leading to the sewer plant, eventually hugely benefitting the sewer plant itself).

SEPTIC GOBBLER®

Packaging, Shelf Life, Storage

Stable for 12 months at ambient temperature, out of direct sunlight.
Available in 5Kg buckets & bulk 20Kg bags. Buy bulk for simple self-manufacturing and repackaging to make Pit Gobbler® for pit latrines.

Sewer Gobbler® in liquid form comes in 1000 litre IBC's for industrial use.
Smaller quantities if required.

CASE STUDY ZA-FS-SG-0915C:

SMALL SCALE FLASK DEMONSTRATION OF THE TREATMENT OF SEWAGE WASTE AT WASTE WATER PLANT

1. Background

Sewage waste water contains high concentrations of COD (chemical oxygen demand) and other harmful waste components that have a detrimental effect to the environment. Sewage treatment facilities often face challenges with the safe and efficient removal of these waste substances. Another problem that sewage treatment plants encounter is the sedimentation efficiency of the sludge once it is activated by the natural bacteria. The foul odor is also problematic. By using specialized bacterial products to augment the sewage treatment process, enhanced bioremediation efficiencies can be realized.

The bioremediation efficiency of a sample of sewage waste water was demonstrated by adding our proprietary bacterial mix Ecozyme Sewer Gobbler® in a bench scale static test. This preliminary test focused on the analysis of ions such as nitrates, nitrites, phosphates and ammonia which contribute to problems in the environment due to lack of efficiency in the sewage treatment process. In addition the removal of COD was assessed. The sedimentation of the treated sewage was also assessed to confirm that there would be no detrimental effect on clarifier performance downstream of the biological process. Odor abatement was also evaluated. The experiment was designed as a crude assessment of the potential overall bioremediation achievable using a ready to use microbial effluent treatment product at a concentration of 1×10^8 CFU.ml⁻¹.

2. Approach

2.1 Bioremediation assessment:

Inlet sewage waste water to the effluent treatment plant as supplied (pH 4.6), was thoroughly mixed and 100 ml aliquots were added to 500ml Erlenmeyer culture flasks. The flasks were treated as follows:

Flask 1 Control:

Un-inoculated flask that contained raw sewage sample

Flask 2 Test:

Raw sewage sample inoculated with 1ml of Ecozyme Sewer Gobbler®.

Yeast extract (0.5% m.v⁻¹) was added to both flasks which served as a protein source. The flasks were closed using sterile drapes and were incubated at 30°C for 120 hours on an orbital shaker, without any supplementation of air.

Effluent samples taken from the flasks were analyzed at time 0, 24, 48 and then at 120 hours after incubation, using standard water analysis tests kits. (Merck Spectroquant).

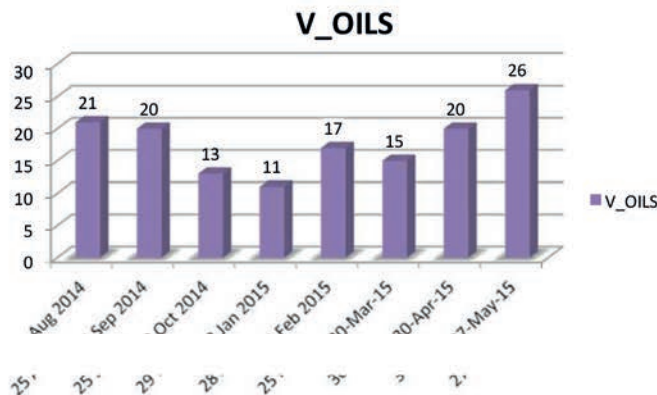
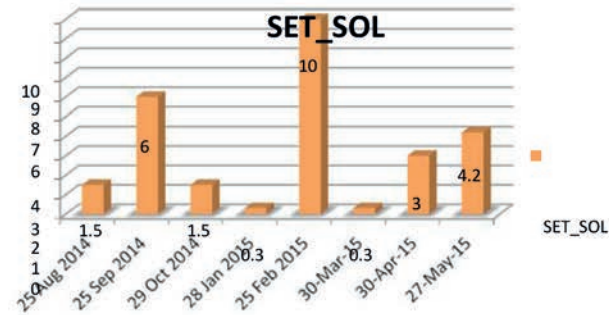
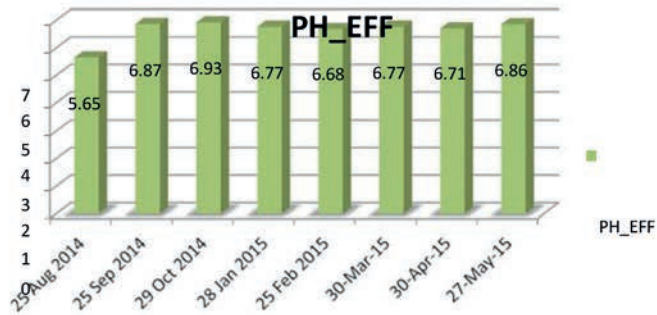
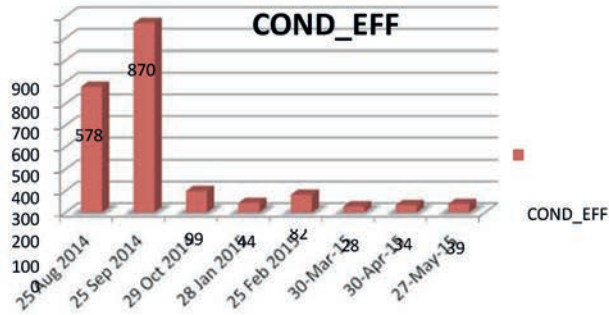
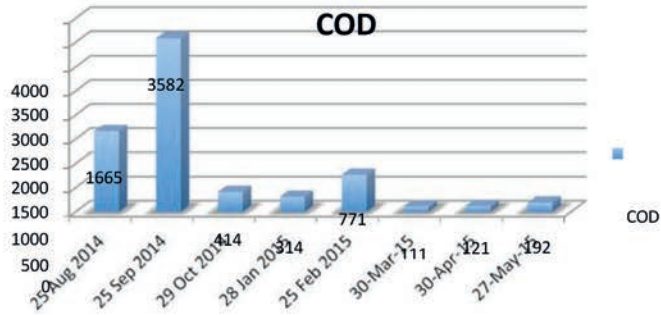
SAMPLE ANALYSIS RESULTS REPORT

SITE DETAILS: SEVERALY CONGESTED 15,000L BUTCHERY FAT TRAP

	COD	COND_EFF	PH_EFF	SET_SOL	V_OILS	TIME
25 Aug 2014	1665	578	5.65	1.5	21	10:15
25 Sep 2014	3582	870	6.87	6	20	12:50
29 Oct 2014	414	99	6.93	1.5	13	10:25
28 Jan 2015	314	44	6.77	0.3	11	9:45
25 Feb 2015	771	82	6.68	10	17	10:10
30---Mar---15	111	28	6.77	0.3	15	8:48
30---Apr---15	121	34	6.71	3	20	9:50
27---May---15	192	39	6.86	4.2	26	7:50
Average	896.3	221.8	6.7	3.4	17.9	

SAMPLE ANALYSIS RESULTS REPORT

SITE DETAILS: SEVERALY CONGESTED 15,000L BUTCHERY FAT TRAP



Conclusion:

In an environment where the at first consistency of the fat trap was so thick that a pole could stand upright and unsupported, within a week the effluent in the fat trap had been digested into a completely liquid consistency where the same pole now floated and the effluent could finally run unimpeded back into the municipal sewer system as it was originally designed to do.

The client is now not getting municipal fines for water quality, and is experiencing an additional \$1,836.00 saving per month where the grease and fats no longer have to be twice monthly be pumped out and carried off site at a cost of \$918.00 a time.



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