

FINEST 50 CASE STUDIES

**BIOLOGICAL
TREATMENT,
ETP, FOG,
HOTELS, STP,
WASTEWATER**

DEGRADATION OF FAT, OIL & GREASE AT A HOTEL'S STP

By Amalgam Biotech

INTRODUCTION (FOG)

The presence of Fats, Oil, and Grease (FOG) in industrial processing wastewater or hotel industries can cause all kinds of problems in biological wastewater treatment systems onsite and in public sewage treatment facilities. It is, therefore, essential to reduce, if not remove FOG completely, in primary treatment then manufacturing industries, hotel industries, and societies have to experience the most severe problems with FOG.

Organic toxic waste [Oil and Grease (O&G)] causes ecological damages for aquatic organisms, plants, animals, and equally mutagenic and carcinogenic for the human beings. They discharge from different sources to form a layer on the water surface that decreases dissolved oxygen. O&G layer reduces biological

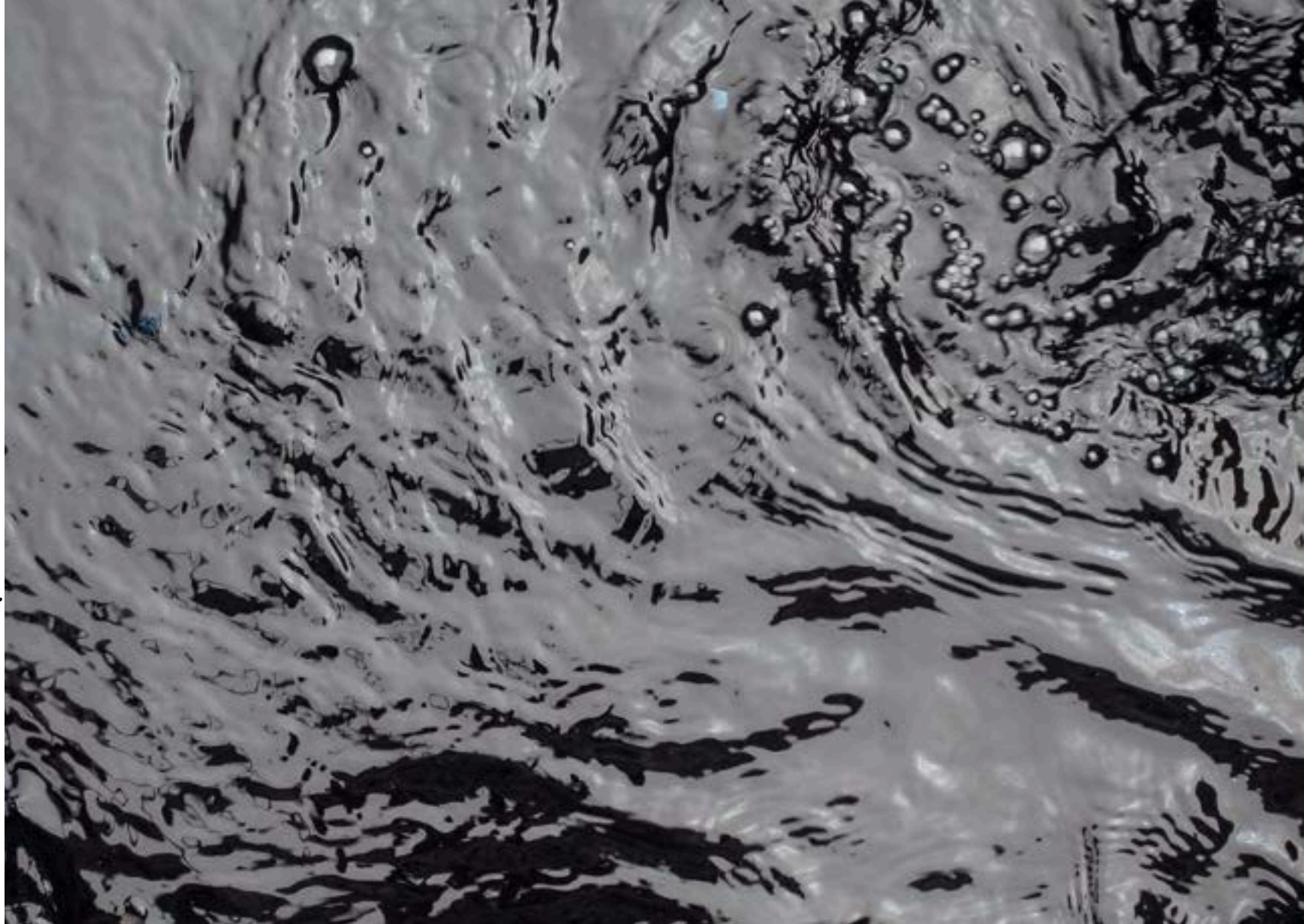
activity of treatment process where oil film formation around microbes in suspended matter and water. This leads to decrease dissolved oxygen levels in the water. Then oxygen molecules are difficult to be oxidative for microbial on hydrocarbon molecules and cause ecology damages to water bodies.

The conventional techniques remove oil and grease using skimming tanks and oil and grease traps in treatment plants but the main disadvantage of these methods is their low efficiency of removing oil and grease.

Environmental studies described prevention of fat blockage or filming

CLIENT PROFILE

The company intends to carry on the business of providing innovative technical solutions for environmental applications including wastewater treatment, sewage treatment, solid waste management, etc. The company has achieved more than 300 project installations in all over India. They supplied many STPs (Sewage Treatment Plants) in hotel industry. But one of the projects was facing a problem of scum generation due to heavy oil and grease which is passing into the system. Because of that plant is not working properly and Hotel is facing smell problems. Due to this the hotel customers and employees turned very hostile and restless.



FAST FACTS

- **Problem Food Particles:** Scum formation in a settling tank, chocking, scum, suspended solids carryover, and odor.
- **Product Used:** Bacta Cult™ FOG SR BAR and FOG SR TOUGH
- **Key Benefits:** Fast degradation of fat, oil and grease, good MLSS generation, reduction in BOD and COD, reduction in manpower cost.

in waste systems before discharging wastewater into the sewage systems. These studies investigated a new product “BACTA FOG SR BAR & TOUGH” to degrade organic matter with a commercial mixture (lipase enzymes) that cleans holding tanks, septic tanks, grease traps, other systems, etc.

WHY FOG IS A PROBLEM IN WASTEWATER TREATMENT

PLANTS?

- When FOG (fat, oil, and grease) enters into the wastewater systems like STP and ETP it creates the layer in the water surface, and because of that presence MLSS in the aeration tank is not able to survive and starts dying.
- Sludge carry-over problem in the secondary clarifier because of dead biomass, reason is only FOG (fat, oil,



and grease).

- Presence of Fat, Oil and Grease (FOG) in wastewater is an ever-growing concern to municipalities and solid-waste facility operators. FOG enters sewer system from restaurants, residences, and industrial food facilities. Its release into sewer system results in a continuous build-up that causes blockage of sewer pipes.
- FOG (Fat, Oil, and Grease) does not mix with water, and when wastes that contain FOG are disposed of in

a standard sewer without treatment, the fatty FOG portion of the waste

stream can float to the surface and solidify, causing clogging. The improper

Sr. No.	Parameters	Unit	Inlet to Biological System	Outlet of Secondary
1	Flow	m3/day	300	
2	pH	-	-	-
3	BOD	mg/lit	250	3 0
4	COD	mg/lit	800	1 5 0
5	Total Dissolved Solids	mg/lit	400	-
6	Total Suspended Solids (TSS)	mg/lit	200	-
7	Ammonical Nitrogen	mg/lit	-	-
8	Oil & Grease	mg/lit	243	< 2 1

Table 1: Laboratory Measurements



disposal of FOG waste causes harm to the wastewater systems.

- If high-quantity FOG is collected in the tank, it allows generating the scum in the wastewater systems and it also contributes to generating the bad odor.

SOLUTION: A NEW TREATMENT FOR FOG REMOVAL

Our product “Bacta Cult FOG SR Bar” can degrade Fat and Oil. Bacta cult FOG SR is a bar/pellet containing active microbes which are released slowly into the water medium containing oil. The slow-release or extended-release is like our “slow-release medicines”. It is a combination of non-pathogenic, naturally occurring, and acclimatized bacteria. They are selected according to their ability to degrade fat, oil and grease.

The FOG SR BAR is tied and suspended at the inlet of the oil and grease trap. It gets consumed over a period. The typical time is around 25 to 35 days depending on the flow and quantity of oil present in the effluent.



APPLICATIONS

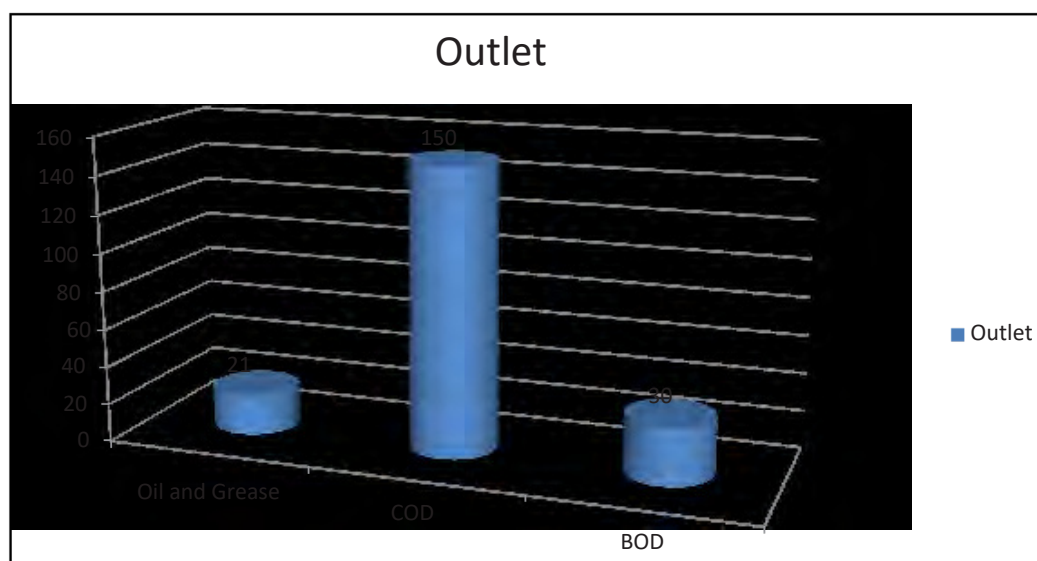
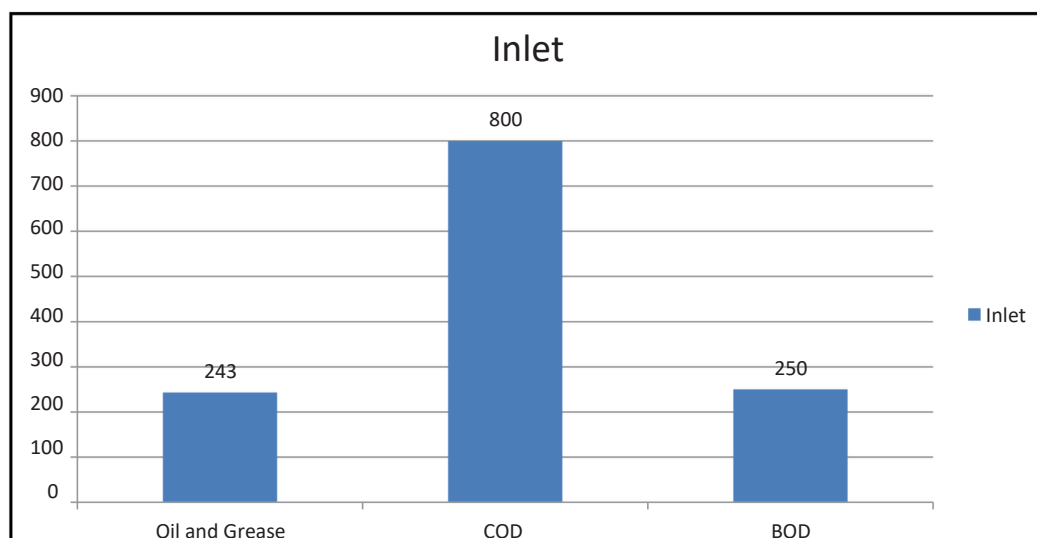
- Grease traps
- Wastewater treatment plants
- Holding tanks
- Activated sludge
- Lagoons
- Waste pumps

BENEFITS

- Breaks down of fat and grease build-up
- No special equipment needed
- Eliminates wide range of complex organics bad odors at the source
- Enhances BOD/COD removal
- Facilitates grease trap cleaning
- Cost-effective and easy to use increases system efficiency contains no chemicals
- Reduces sludge build-up
- Degrades a wide range of complex organics

DOSAGE SCHEDULE

Note: Each Fog SR Bar bag will automatically be slowly exhausted which you need to refill. It will last you for 25-30 days. It will be contained in a net, which you need to suspend into the water. It should be immersed in water minimum at a level of 500 mm below water level.



RESULT

After using the Bacta cult FOG SR Bar fat and oil is start getting degraded easily and because of that, the scum which is generating in collection tank is now cleaned. FOG SR Bar also helped to give the reduction in COD and BOD. After the regular use of Bacta Cult FOG SR Bar, biological system is running good and Oil and grease ratio came in the limit.

About the Contributor

Amalgam Biotech was established in 2009. It is a collaborative solutions provider in the field of Industrial water and waste management. It has water expertise to cater to industrial wastewater plant engineering and ETP troubleshooting services. It is actively working in the export business of turkey-based projects for water & wastewater treatment and specialized ETP and WTP equipment.

S.No.	Flow m3/Day	Quantity Required	Number of Quantity/ Pieces
1	300 m3/day	3 kg	3

Table 2: Bacta Cult FOG SR Ba