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# Biozyme

## Technical Sheet

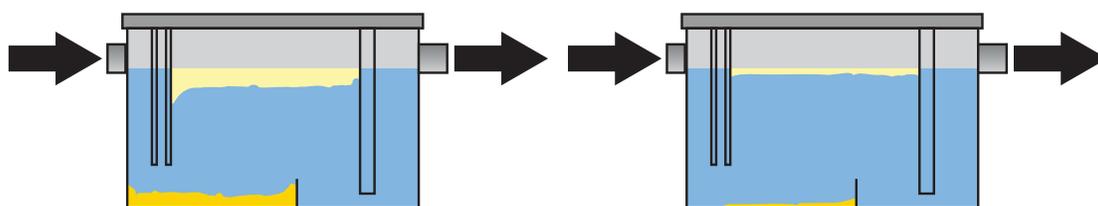
### Overview

Restaurants, hospitals, schools and other institutions are prohibited from directly discharging grease into the city sewer system and must take precautions to prevent oil and grease from cooking operations entering the sewer lines. Because of the regulations surrounding discharge, grease traps are essential to the operation of many businesses and organizations. Grease build-up is often the cause of slow drain and sewage back-ups as well as creating drain odors and even pest problems.

The bacterial strains present in Biozyme produces lipase enzymes which target large oil and grease molecules, breaking them down into smaller molecules that are then metabolized by the bacteria to quickly degrade the fat, reducing the risk of blockages. As the lipase enzymes get to work, free fatty acids are released, which reduces the pH. This creates a harsh environment for bacteria. The strains in Biozyme are specially selected to work effectively in lower pH ranges found in grease traps and grease interceptors.

By design, a grease trap not only traps grease, but it also traps other solid food material. The purpose of a grease trap is the on-site collection of food waste that would otherwise flow directly to the municipal waste water treatment facility. As the waste collects, the trap becomes less efficient and finally reaches the point where it becomes clogged and fails. Trap failure results in drain back-ups and the release of obnoxious odors into the food handling establishment. Once it has failed, the trap will require pumping and cleaning. The result is added expense and inconvenience for the management of the food service facility, and offensive odors for the patrons.

As demonstrated by the illustrations and test data presented here, the addition of Biozyme, containing selected friendly naturally occurring bacterial strains, significantly reduces the level of fats, oils, greases, solids and odors in grease traps.



Standard grease trap before Biozyme

Image 1

Standard grease trap after Biozyme

Image 2



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### Test Procedure

This study was performed in specially designed and constructed ten gallon polycarbonate grease traps modeled after grease traps in commercial use. Since the types of waste found in grease traps differ from location to location, a uniform mixture of food waste, consisting of 33% fat, 33% protein, and 33% carbohydrate was added twice daily. The traps were inoculated with a sludge mixture obtained from various commercial grease traps. The sludge material contained high levels of various naturally occurring bacteria found in commercial traps. After one week of adding food waste and sludge material, one trap was treated with Biozyme’s bacterial strains. The bacteria were added once per day, after the second addition of waste material. The traps were also flushed with 5 gallons of water twice a day. After six weeks, the traps were disassembled and the contents tested for levels of fat, oils, and grease (FOG), biochemical oxygen demand (BOD), and volatile fatty acids (odor).

### Test Results

The test results demonstrated a dramatic difference between the control trap and the trap treated with Biozyme’s bacteria. This difference can be seen in images 1 and 2. These images represent a side view of the grease traps. Waste material enters the trap on the right side of the picture. The traps contain a baffle system that is designed to trap the grease and solid waste that enters the trap allowing only liquefied material to exit the trap (left hand side of the picture).

Image 1 is the control trap and image 2 is the trap treated with Biozyme’s bacteria. As depicted in these illustrations, the untreated trap has a substantially greater accumulation of solids than the treated trap. In fact the solids level in the control trap is at the point where it will soon clog and cause an odor-releasing backup.

Parameter	Control (PPM)	With Biozyme (PPM)	Precent Reduction
Fat, Oils, and Grease	340	70	79%
Biochemical Oxygen Demand	1487	293	80%
Volitile Fatty Acids	22.13	.96	96%

### Sumamry

Due to legislative and environmental requirements, as well as maintenance needs, the use of Biozyme’s as a cost effective biological additive, is essential for a properly maintained grease trap in a food service operation.