

THREE GREASE PROBLEMS - ONE SOLUTION

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The easiest and most cost-effective solution for grease build up is through “pre-treatment”. Treating the grease at its source reduces the back-up and build-up problems that can occur in municipal sewer systems; not to mention, problems associated with grease traps, wet wells, and lift stations. Pre-treatments usually required handling of hazardous materials that cause disposal problems and health issues; while other products can be messy and need additional equipment for adequate grease reduction. Cellinite Technologies, Inc. of Needham, Massachusetts has developed a non-hazardous easy-to-use solution that is effective in reducing grease and grease build-up without the need of expensive mixing and dosing equipment and additional man-hours.

Cellinite BioTabs™ is a solid tablet treatment for wastewater that uses a patented oxygen-delivery system to support aerobic bacteria in the breakdown of organic solid waste and grease. When applied to wastewater, the tablet sinks to the bottom of the collection system where it begins to super-oxygenate the wastewater from the bottom of the tank up. Buffers, nutrients, and aerobic bacterial spores are then distributed throughout the wastewater in the oxygen plume created by the effervescing tablets; thus, beginning the breakdown of organic waste and grease throughout the whole collection system.

Fats, oils, and grease (F.O.G.) have become an issue of concern. Food processing facilities, wastewater treatment facilities, and lift stations (just to name a few) are faced with grease build-up and grease discharge problems everyday and are spending many thousands of dollars a year on expensive treatments, equipment, and pump-outs. If proper maintenance is not provided, grease can begin to stick to piping and collection system walls; eventually coating whatever is surrounding the wastewater and grease. In lift stations and wet wells, grease will float on top of

the wastewater and eventually create a grease shelf and/or a grease cap. As this build-up continues, sewer systems leading to treatment facilities and lift stations can back-up and lead to system failure. Lift stations, collection systems, and wet wells that have grease built up run less efficiently; not to mention, the grease build up reduces the total volume of wastewater that gets treated. All of these issues can lead to serious maintenance problems, added operations costs, and expensive replacement solutions.

In this case study three scenarios are presented, where Cellinite BioTabs™ helped reduce grease problems in different applications.

East Providence Wastewater Treatment Facility

The East Providence wastewater treatment facility found Cellinite BioTabs™ to be a cost-effective solution to their maintenance of a grease collection pit. Grease skimmed off of the primary tank is collected into a 7000 gallon grease pit. Prior to using Cellinite BioTabs™ the grease pit had to be pumped out approximately four times a year to keep the grease pit effective. To pump out the tank, a septage hauler would be used at \$100 per hour at a cost of \$339.00 per 9000-gallon tank. The grease is then transferred to another treatment facility where it costs \$345.00 per percentage of grease solid;



Primary Skimmer at East Providence Treatment Facility



Grease pit at East Providence treatment facility

in East Providence's case, they would average between 12 to 17 percent of solids per transfer. The pumping would cost approximately \$450.00 and the treatment would at least cost \$4140.00; altogether, it cost approximately \$4600.00 per maintenance and about \$17,000 annually. Not to mention, the large amount of grease degrading in the grease pit resulted in noxious odors that were followed by complaints from the neighborhood.

Thomas Azevedo, Assistant Superintendent Water Pollution Control, witnessed how Cellinite BioTabs™ reduced hydrogen sulfide levels in a force main from the Town of Barrington and wanted to try the tablets to help ease their maintenance of the grease pit. East Providence applied six tablets twice a week on Monday and Thursday. The grease pit and its contents were then mixed with a portable compressor for 60 minutes to ensure proper blending. The next day, Tuesday and Friday, all of the free liquid was decanted from the pit and returned to the primary tank. After seeing positive results in reduction of grease solids and odors, they have continued to use this process for 16 months and have only pumped out the grease pit once in that timeframe. However, the pumping was not because of grease build up, but to remove a build-up of plastic material that was normally collected due to previous maintenance operations. Due to the elimination of grease pumping as a result of the use of Cellinite BioTabs™ the East Providence wastewater treatment facility has cut their maintenance costs in half.

In addition to using Cellinite BioTabs™ in their grease pit Azevedo also applies the tablets to their flygt pump stations and to the influent line to an injector pump station to clean up the build-up of grease in the injector pot.

Ocean State CPL

Ocean State CPL, East Providence, Rhode Island, is a central processing location for franchises of Dunkin Donuts. Ocean State prepares menu items like donuts and pastries at this central location and then delivers the food to approximately 25 franchises, with a total of 135 individual stores. This is an efficient way to produce the variety of doughnuts offered by the Dunkin Donut restaurants; however, producing that much food can create a lot of grease for disposal. After operating for less than a year, all of the grease produced from the CPL began to clog the sewer system on their block. Grease literally rose out of manhole covers connected to the sewer line down the street from the facility. To prevent fines and citations from the sewer authority the CPL had their exterior grease traps



Applying BioTabs at Ocean State CPL's Grease Traps

and associated sewer systems immediately pumped out. With all the donuts and pastry being produced Ocean State CPL needed an efficient treatment to control the amount of solid grease leaving their facility and grease traps.

Cellinite Technologies, Inc., approached Ocean State CPL about their grease problems. To eliminate sewer clogs it was decided that the best place to start solving Ocean State's grease problem was to treat two 1000-gallon exterior grease traps located under CPL's parking lot, accessible through manholes. This location was selected to apply Cellinite BioTabs™ because the CPL had to pump grease directly from these traps once every eight weeks to prevent future backups in the sewers at a \$750 rate per pumping.

Ocean State pumped out the external grease traps before treatment to ensure that the trial would be as efficient as possible. Afterwards, each external grease trap needed to be treated with six tablets daily (12 total). During the initial application of Cellinite BioTabs™, the tablets were dropped directly into the exterior traps. The solid grease concentrations were so high that the wastewater resembled thick mud and the tablets would rest on the top of the grease. However, after a few daily treatments the tablets would drop directly into the wastewater in a way that the operators would have to step away from the manhole to avoid being splashed, a clear sign that the Cellinite BioTabs™ were breaking down the grease. After continued application of Cellinite BioTabs™ Dave DiPietro, Maintenance Manager, commented on how effective the tablets

were in breaking down the grease and how easy it was to maintain an effective trap. "Previously, we have been pumping out the grease traps once every eight weeks," said DiPietro. "Now that we have been using the [Cellinite] BioTabs™ we should be able to pump out quarterly now."

The CPL was also experiencing clogging and back-ups in their floor drains. A large clean-up effort takes place after each shift. Grease and other cooking materials that are spilled or dropped on the floor are swept or hosed into these drains. However, just like the external grease traps the drains started to backup as well. DiPietro had to have a "roto-rooter" go into the facility and clear out the drain three times in the past year at a flat rate of \$650 per visit. Due to the positive results in the external traps, DiPietro began thinking about other places he can try applying Cellinite BioTabs™ and decided to start applying one tablet in each drain per week. The treatment has been so effective since the initial treatment of the drain lines they have not had any backups and have not needed the services of a roto-rooter.

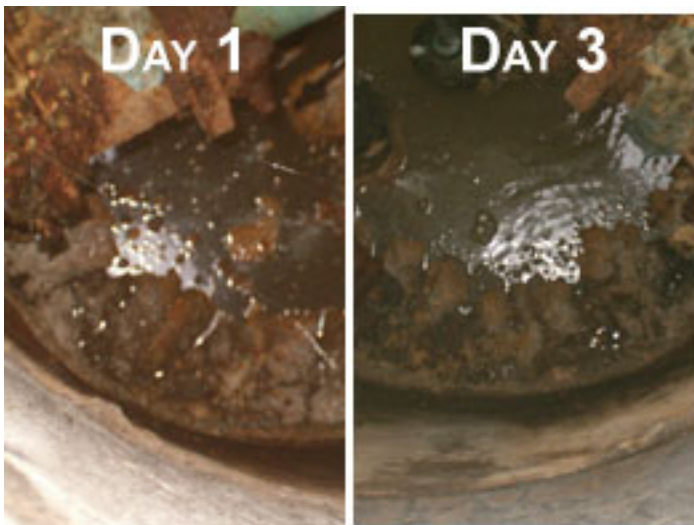
Alpha Supply Co. LLP

Fred Eisenbarth of Alpha Supply Co., LLP, contacted Cellinite Technologies, Inc. in May 2006 in regards to a grease concentration problem one of their customers was facing in Kansas. Alpha Supply Co. is a consulting company that specializes in wastewater solutions and equipment for wastewater associated problems. A customer approached them concerning a grease concentration problem in one of their lift stations. A large sports bar and grill is connected to the customers lift station and all of the grease that is produced from the restaurant is ending up in their wet well. The wet well is 4 feet in diameter and handles approximately 40,000 gallons per day and pumps approximately 250 gallons per minute. The wastewater is approximately 2.5 feet high when not running and about 5.5 feet high when operating. One of the problems is that the city pumps out the wet well every six months allowing sufficient time for grease to build up.

Due to the high volume of grease and the reduced pumping schedule, the wet well



Inside Ocean State CPL's facility



Noticable grease shelf reduction in Eisenbarth's wet well after three days of treatment

eventually formed a grease shelf that was 12 to 16 inches thick and about 6 to 8 inches wide. As mentioned previously, these grease solids are a detriment to lift stations because it makes them run less efficiently as more power is needed and there is less volume for wastewater.

Eisenbarth read a case study about Cellinite BioTabs™ and their ability to reduce hydrogen sulfide and grease concentration in a lift station in the Town of Barrington, Rhode Island. After contacting Cellinite a specific trial dosage for Eisenbarth's case was proposed. During the initial treatment, Eisenbarth had to carefully throw the Cellinite BioTabs™ into the wet well because the grease shelf was covering the wastewater. For fast and effective results it is important that the tablets are submersed into the wastewater instead of resting on the grease shelf so Cellinite BioTabs™ can treat the wet well from the bottom-up. Unfortunately due to the grease cap's thickness, any of the tablets that failed to drop into the wastewater would rest on the grease shelf. However, after continued daily treatment the tablets that submersed in the wastewater were breaking down the grease cap from the bottom. After the initial treatment, Cellinite BioTabs™ that were inaccurately thrown would break off pieces of the grease cap; eventually, breaking down the solid layer completely.

Eisenbarth began using 10 tablets for 4 days, but was able to reduce his treatment to 5 tablets daily. Eisenbarth is continually treating the wet well with only 5 tablets a week and is able to

control the grease that is entering the lift station.

Conclusion

Under a variety of conditions, Cellinite BioTabs™ are effective in controlling solid grease. It is an environmentally-friendly solution that requires no additional equipment for proper treatment and can reduce operation costs and ease maintenance. Unlike other treatments, it is safe to apply in sewer and septic systems; has no disposal restrictions and is not hazardous to wastewater treatment facilities. It is a patented product that no other company has; however, it is a product everybody can use. Cellinite BioTabs™, Join the Oxygen Revolution™.