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Innovations in FOG Maintenance

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The Future of FOG Innovations in Fats, Oils and Grease Maintenance

Every day, food service facilities whip up customer favorites such as French fries and coffee, piling up the fats, oils and grease waste that clogs and damages pipes and creates strong odors. Facilities directors across the country are facing stringent and rapidly changing governmental regulations on grease discharge, with fines ranging from \$500 per quarter to more than \$1,000 per day. Despite following a standard pumping schedule, many struggle to meet the regulations stipulated by local authorities. In addition, as consumers grow increasingly concerned about environmental issues, many are choosing to patronize businesses that have implemented green practices within their operations.

Thanks to new technologies, operations managers now have options beyond pumping to comply with grease trap regulations. These options also provide green benefits such as reducing the amount of fuel used on waste hauling and creating healthier working environments.

Regulations and Fines

At the municipal level, wastewater facility operators analyze the nonfilterable solids, called total suspended solids, in the effluent and other bodies of water. Another measure of water pollution, known as biological oxygen demand, relates to the amount of oxygen required to decompose these solids and other types of organic matter. For example, a township in Pennsylvania requires that BOD and total suspended solids from grease traps should fall into the 200 milligram per liter range and has leveraged fines up \$800 per quarter for having above 1,600 mg/L in both categories.

These regulations and fines vary greatly by municipality. However, many areas have used the standard range of 200 mg/L for BOD and total suspended solids for many years but neglected to strictly enforce the measure. Armed with new detection technologies and budgets that are tighter than ever, municipalities are stepping up enforcement and making it a higher priority for restaurants and eateries to comply with these regulations today.

Municipalities monitor grease in the pipe network by using cameras that display the inside of the public sewer lines on closed circuit televisions. Because grease is not soluble in water, it leaves a trail along the pipe that can lead back to the establishment that is guilty of not complying with regulations.

Common Pitfalls in Grease Management

Typically, trucks haul FOG to a dumping site that has been approved for unloading waste. These designated sites are frequently located far apart from each other and service a large radius. (For example, one of these facilities is located outside of a major East Coast city, and the nearest dumping site is situated approximately 100 miles away.) This dynamic leads to increased fuel expenditures and carbon emissions from transport vehicles.

Operations managers are usually concerned with the cost of paying for grease trap maintenance and exact prices can vary by the size of the grease trap and geographic location. The layout of the inside of the grease trap can also affect the quality and price of services. In addition, odors can also take up to an hour to dissipate from a kitchen after pumping an indoor trap, which may leave a negative impression on customers and staff.

Facility managers should review all maintenance expenses to accurately assess total expenses and proper maintenance options. In addition to pump outs, a facility's maintenance program can include expenses such as water jetting and preparation for health inspections. Water jetting cleans foreign debris and grease build-up from plumbing lines. Additional costs are incurred from paying in-house employees for clean-up, visual site inspection

and documenting the grease management system's condition following a water jetting or pump-out.

Although the issue is often overlooked, facility managers risk crosscontamination during removal of FOG. Kitchens are exposed to air-borne bacteria when the grease trap is opened, and floors and other surfaces can be contaminated by equipment used during the cleaning process. Also, most exterior traps are located in the parking lots where customers walk to and from their vehicles.

Better Grease Trap Management

A liquid formula was recently developed using a natural, organic peat extraction and stabilization process, and restaurants have been getting positive results degrading the FOG within the grease traps, reducing pump-outs and ongoing damage to pipes.

This alternative process is easily integrated into existing operations and provides facilities managers with the ability to save time and money while meeting or exceeding local and state grease removal requirements. The formula eliminates FOG from the waste stream by accelerating the natural process of organic degradation, eliminating FOG and toxic odor. The peat extraction formula enhances microbial metabolic rates, causing an increase in microbial cell counts, and increases the rate of degradation in which microbes use FOG as a nutrient.

Since it is not an enzyme or bacteria, this new bio-environmental technology optimizes the existing biological environment, eliminating the uncertainties that can occur when adding foreign bacteria to an environment. This daily application is easily integrated into existing operations, does not damage pipes and eliminates most traditional maintenance methods, cutting an operation's costs.

When introducing a new method for grease trap management, it is important to keep your municipality informed throughout the process to ensure that you remain in compliance. As new maintenance options are explored, only work with a company willing to communicate directly with the municipality to provide research and documentation about their process.

Research and Real-World Applications

A study recently conducted by Rowan University's Department of Chemical Engineering confirmed the effectiveness of this organic formula in breaking down FOG. The study, titled "Grease Trap Samples Experiment: Total System Solution Performance Analysis of FOG Degradation," concluded that this formula increased the number of microbial cells that degrade FOG in grease trap samples by four to five times and doubled the biological activity of each microbe.

In addition to university research and testing, real-world application within the food service industry has shown that this process provides a solution to the FOG and has the potential to eliminate the need for traditional grease trap maintenance methods, resulting in reduced costs for food service operations of all sizes.

For example, the Knowles Restaurants Group serves more than 350,000 meals a year at its four New Jersey locations: The Manor, Highlawn Pavilion, Pleasantdale Chateau and the Ram's Head Inn.

Recently, the company began using this low-cost green alternative made from a peat extraction process to clear the FOG from their eateries' grease trap as part of a portfolio of sustainability efforts. Knowles' other initiatives include converting used vegetable oil into biodiesel for service vehicles and growing fruits and vegetables onsite.

"This is a fantastic addition to our portfolio of green, efficient, and cost- and waste-reducing efforts, and we couldn't be happier to have it work for us," owner Kurt Knowles said.

Many food service professionals are challenged to meet stricter municipal regulations on grease disposal. Several factors, such as the size and nature of the operation, can affect the proper grease management of a facility, and managers should examine a variety of proven solutions when deciding the best maintenance routine for their operations.

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