

A Fact Sheet for Capturing Restaurant Oil and Grease



The Issue

Improperly managed fats, oils and grease (FOG) going into sinks and drains may not necessarily be captured even with an in-line grease trap / interceptor. Un-captured FOG may travel onward into a sanitary sewer system to become a big problem for both wastewater collection and treatment plant systems. FOG accumulates in pipes, manholes, and pump stations in the sanitary sewer collection system. Many sanitary sewer overflows (SSOs) can be attributed, at least in-part, to FOG blockage within the sewer system. SSOs are untreated wastewater (liquid sewage) spewing onto the ground, traveling a path of least resistance, gathering in low lying areas, or moving through stormwater channels into streams, creeks, rivers or lakes. All along the way, SSOs endanger public health because contact with raw sewage can transmit deadly diseases. Cleanup of SSOs is an expensive task - costs plus civil penalties can be imposed for causing a SSO. Costs of cleaning up SSOs not attributed to a specific sewer user are passed along to all customers in the form of higher wastewater treatment utility rates. Please help to keep FOG out of sinks and drains in order to protect the environment and to avoid additional costs.

The Solution

Captured used cooking oil is a valuable commodity. Whether it is deep fryer oil, remnants from pan frying, or meat fat drippings, if it can be kept somewhat free of contaminants (water and recognizable solids) there are many companies in North Carolina eager to pay for it. Some of these companies will provide a sanitary container to deposit the grease into. Some facilities install large quantity built-in collection tanks, having a lockable external suction hose

connection for convenient pumper truck pick-up. Collection routes are set-up to assure reliable service to pump out used cooking oil containers.

How is Captured Used Cooking Oil and Grease Recycled?

Used cooking oil and grease is recycled based on the "market value" of each batch or load. As a commodity, value is heavily dependent on the quality of the material relative to present end use levels of production and consumption. Economic conditions determine the best channel of reuse / recycling for used oil and grease. Some used cooking oil companies collect for a singular type of reuse / recycling.

Processing collected oil batches begins by heating so water can be rapidly decanted. Additional water is further removed through vacuum separation and centrifuge to remove solids. Batches are tested for pesticides and other contaminants to validate the higher value oil destined for animal feed ingredient markets. Removed solids are also sold for animal feed content if sampling analysis is passed. Other channels for sale and distribution for lesser quality oil may be soap production, cosmetic and skin care products.

Biofuels production is a growing end use channel for used oil and grease – some companies collecting used oil and grease will process the material into biofuel in-house. The popularity of biofuels has increased demand. Biofuels are frequently made from used oil having a lower market value than used oils used for animal feed production. Market conditions for used oils and grease destined to become biofuel are generally lower quality and price than animal feed ingredient used oil and grease.

What Happens to Un-Captured FOG?

The first FOG defense is preventing it from going down the drain. It is impossible to prevent all grease from going down the drain. Even if wares are scraped using dry cleanup techniques, the remaining FOG is washed off and sent down the drain. If conditions are appropriate, this FOG will be separated from the wastewater within the grease interceptor / trap to await pump-out. The grease trap is the final FOG defense for preventing it from entering into the wastewater collection system.

FOG cannot be sufficiently captured within an interceptor if:

1. Retention time is not sufficient for separation;
2. Water temperature is too high for oil to separate from the water;
3. Turbidity occurs as flow moves into each chamber, re-mixing contents; and / or
4. Wastewater pH is too high.

Retained FOG and solids within the interceptor cannot exceed design holding capacity. If too much trap volume is taken up as storage, flow will short circuit through the interceptor – neither oils nor solids will then be able to separate from the influent. FOG will pass through the trap, going out into the sewer system. Periodic trap maintenance is important to prevent separation failure. Backups, odors and drainage problems are delayed indications that the grease trap has not functioned as it should have for quite a long time. Periodic servicing of the trap involves removal of brown grease at the top and settleable solids at the bottom, along with inspection of the sanitary tees, spreaders and baffles. Pumper haulers document a manifest each time a trap is pumped as proof of service and for billing purposes. Customers are required to keep a copy to comply with FOG sewer use ordinance regulations.

What Happens to Captured Brown Grease?

Grease trap material, a.k.a. brown grease, is still considered a waste, requiring pumpers to be permitted by DENR's Division of Waste Management, so the cost of various disposal options is built into interceptor clean-out (pumping) service fees. Presently, grease trap pumpers transport the material to land application site, dewatering facility, wastewater treatment plant, composting operation, or rendering plant. Dewatered grease trap solids are thermophilically composted, anaerobically digested, land applied (after pathogen reduction), rendered or landfilled. Technologies are being developed for separation of energy rich oil components for reuse and this may help to offset some of the disposal costs for the remaining grease interceptor solid constituents. All brown grease disposal options are costly! Best management practices can reduce interceptor loading and potentially lessen pumping frequency.

Benefits of Grease Capture

Compliance - Wastewater utility sewer use ordinances strictly limit concentrations of fats, oil and grease discharged into sanitary sewers. All publically owned wastewater utilities are required to maintain a FOG Program providing oversight of all food service entities discharging into the collection system. Pumping frequency, sampling, and analysis determines compliance judgement. Best management practices will help to maintain compliance by capturing FOG rather than letting it be discharged into the wastewater collection system.

Cost Avoidance - FOG source reduction techniques such as dry cleanup and cooking oil/ grease collection helps to reduce loading of the grease interceptor, so pump-out intervals may be extended resulting in cost savings.

Economic Incentives – Captured waste oil / grease is a desirable commodity having saleable value!

Environmental Savings - Beneficial reuse of captured used cooking oil / grease saves

natural resources. Capturing FOG helps prevent sanitary sewer overflows, which endanger public health and degrade natural resources.



The Grease Goblin is the mascot for DEACS' Oil and Grease Management Program. He serves as a reminder to keep grease out of sinks and drains before it becomes a nuisance.