City of Durham's
Guide to Grease Reduction

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Frequently Asked Questions

Why is grease a problem?

Grease is singled out for special attention because of its poor solubility in water and its tendency to separate from the liquid solution.

Large amounts of oil and grease in the wastewater cause trouble in the collection system pipes. It decreases pipe capacity and, therefore, requires that piping systems be cleaned more often and/or some piping to be replaced sooner than otherwise expected. Oil and grease also hamper effective treatment at the wastewater treatment plant.

Grease in a warm liquid may not appear harmful. But, as the liquid cools, the grease or fat congeals and causes nauseous mats on the surface of settling tanks, digesters, and the interior of pipes and other surfaces which may cause a shutdown of wastewater treatment units.

Problems caused by wastes from restaurants and other grease-producing establishments have served as the basis for ordinances and regulations governing the discharge of grease materials to the sanitary sewer system. This type of waste has forced the requirement of the installation of preliminary treatment facilities, commonly known as grease traps or interceptors.

What is a grease trap and how does it work?

A trap is a small reservoir built into the wastewater piping a short distance from the grease producing area. Baffles in the reservoir retain the wastewater long enough for the grease to congeal and rise to the surface. The grease can then be removed and disposed properly.

What is a grease interceptor?

An interceptor is a vault with a minimum capacity of between 500 gallons that is located on the exterior of the building. The vault includes a minimum of two compartments, and flow between each compartment is through a 90° fitting designed for grease retention. The capacity of the interceptor provides adequate residence time so that the wastewater has time to cool, allowing any remaining grease not collected by the traps time to congeal and rise to the surface where it accumulates until the interceptor is cleaned.

How often should a grease trap be cleaned?

All removal systems must be cleaned on a monthly schedule. More frequent cleaning will be required if a user's discharge contains more than 250 mg/L of fat, oil, and grease. Less frequent cleaning is permitted if it can be demonstrated to the City that the 250 mg/L limit can be met with the proposed cleaning schedule.

Do I need a grease trap?

Any establishment that introduces grease or oil into the drainage and sewage system in quantities large enough to cause line blockages or hinder sewage treatment is required to install a grease trap or interceptor. Interceptors are usually required for high volume restaurants and large commercial establishments such as hotels, hospitals, factories, or school kitchens. Grease traps are required for small volume (fast food or take-out restaurants with limited menus, minimum dishwashing, and/or minimal seating capacity) and medium volume (full menu establishments operating 8-16 hrs/day and/or serving 100-400 meals/day) establishments. Medium volume establishments may be required to install an interceptor depending upon the size of the establishment.

Is the grease trap I have adequate?

The size of the trap depends on the discharge of a facility.

The size will also depend largely upon the maintenance schedule. If a grease trap or interceptor is not maintained regularly it will not provide the necessary grease removal. The establishment should work out a specific cleaning schedule that is right for the establishment. All grease traps need to have the grease cleaned out periodically and no one likes to do the job. It is a dirty job. Running extremely hot water down the drain only moves the problem down stream. It does not go away. Catch the grease at the source! This is the most economical means to reduce all costs.

What if I don't install a grease trap?

Best Management Practices (BMPs) must be implemented. If an establishment cannot be in compliance with BMPs then a grease trap will have to be installed. Remember if an establishment uses grease and oil in food preparation, it will eventually encounter a maintenance problem with a plugged building sewer line. The blockage can create a sewer backup situation and ultimately a potential health problem in the establishment. Someone will have to pay for removing the blockage.

If the problem is in the building sewer line, then the establishment has direct responsibility for paying for the maintenance. If the blockage or restriction is in the public sewer main and it can be proven that the establishment is the cause of the

blockage, then the establishment may have to pay for the public sewer to be maintained. Blocking a sanitary sewer line is also a violation of the federal Clean Water Act.

Who determines if I need a grease trap or interceptor?

The NC State Plumbing Code chapter 10 section 1004.4 states that a grease interceptor shall be installed in the waste line leading from sinks, drains or other fixtures in the following establishments when, in the opinion of the plumbing official, a hazard exists: restaurants, hotel kitchens or bars, factory cafeterias or restaurants, clubs, or other uses where grease can be introduced into the drainage system in quantities that can affect line stoppage or hinder sewage disposal.
In addition to the state plumbing code, the City of Durham's local Sewer Use Ordinance regulates grease traps or interceptors.

How can I get in compliance?

The establishment should contact the pretreatment coordinator for assistance.

The acceptable practice of minimizing oil and grease is to remove it at the source. Many times this can be accomplished by modifying management practices to avoid or minimize the amount of oil and grease allowed to enter the waste stream.

There are many different ways to separate and remove oil and grease from the waste stream. The most common method is to use a grease trap. Traps are generally modified septic tanks placed to receive kitchen wastes only and act as a settling and separation basin. Other methods are grease interceptors, and automatic separators. All of these require maintenance and regular removal of the oil and grease.

Best Management Practices (BMPs)

Prevent Blockages in the Sanitary Sewer System

Train kitchen staff and other employees about how they can help ensure BMPs are implemented.

People are more willing to support an effort if they understand the basis for it. All of the subsequent benefits of BMPs will have a better chance of being implemented. Talk to the establishment manager about the training program that he/she has implemented.

Post "No Grease" signs above sinks and on the front of dishwashers.

Signs serve as a constant reminder for staff working in kitchens. These reminders will help minimize grease discharge to the traps and interceptors and reduce the cost of cleaning and disposal. Check appropriate locations of "No Grease" signs.

Use water temperatures less than 140° F in all sinks, especially the pre-rinse sink before the mechanical dishwasher.

The mechanical dishwasher requires a minimum temperature of 160° F, but the Uniform Plumbing Code (UPC) prohibits discharging the dishwasher to grease traps.

Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal or solidify in the sanitary sewer collection system as the water cools. The food service establishment will reduce its costs for the energy – gas or electric – for heating the water. Check boiler or hot water heater discharge temperature. Measure the temperature of the hot water being discharged from the closest sink.

Use a three-sink dishwashing system, which includes sinks for washing, rinsing, and sanitizing in a 50-100 ppm bleach solution where water temperatures are less than 140° F. (see above).

The three-sink system uses water temperatures less than 140° F where a mechanical dishwasher requires a minimum temperature of 160° F. (see above).

Note: The Uniform Plumbing Code (UPC) prohibits the discharge of dishwasher water to grease traps.

The food service establishment will reduce its costs for the energy - gas or electric - for heating the water for the mechanical dishwasher and for operating the dishwasher. Measure temperature of the hot water at the three-sink system.

Recycle waste cooking oil.

There are many waste oil recyclers throughout North Carolina.

"Dry wipe" pots, pans, and dishware prior to dishwashing.

The grease and food that remains in pots, pans, and dishware will likely go to the landfill. By "dry wiping" and disposing in garbage receptacles, the material will not be sent to the grease traps and interceptors. This will reduce the amount of material going to grease traps and interceptors, which will require less frequent cleaning, reducing maintenance costs. Observe dishwashing practices.

Dispose of food waste by recycling and/or solid waste removal.

Some recyclers will take food waste for animal feed. In the absence of such recyclers, the food waste can be disposed as solid waste in landfills by solid waste haulers. Recycling of food wastes will reduce the cost of solid waste disposal. Solid waste disposal of food waste will reduce the frequency and cost of grease trap and interceptor cleaning. Inspect grease traps and interceptors for food waste accumulation. Confirm the recycler or solid waste removal company with the establishment manager.

Properly Maintain Grease Traps and Interceptors to Prevent Introduction into the Sanitary Sewer System

Witness all grease trap or interceptor cleaning/maintenance activities to ensure the device is properly operating.

Grease trap/interceptor pumpers may take shortcuts. If the establishment manager inspects the cleaning operation and ensures it is consistent with the procedures in the section on Grease Trap and Interceptor Maintenance they are more assured of getting full value for their money. The establishment will ensure it is getting value for the cost of cleaning the grease trap or interceptor. Otherwise the establishment may be paying for cleaning more often than necessary.

Clean undersink grease traps weekly.

If grease traps are more than 50% full when cleaned weekly, the cleaning frequency needs to be increased. Undersink grease traps have less volume than grease interceptors. Weekly cleaning of undersink grease traps by the establishment's own maintenance staff will reduce the cost of cleaning the grease interceptor. If the establishment does not have a grease interceptor, the undersink grease trap is the only means of preventing grease from entering the sanitary sewer system. If the grease trap is not providing adequate protection, installation of a grease interceptor will be required.

Clean grease interceptors routinely.

Grease interceptors must be cleaned routinely to ensure that grease accumulation does not cause the interceptor to operate poorly. The cleaning frequency is a function of the type of establishment, the size of the interceptor, and the volume of flow discharged by the establishment. Routine cleaning will prevent plugging of the sewer line between the food service establishment and the sanitary sewer

system. If the line plugs, the sewer line may back up into the establishment, and the business will need to hire someone to unplug it.

Keep a maintenance log.

The maintenance log serves as a record of the frequency and volume of cleaning the interceptor. It is required by the pretreatment program to ensure that grease trap/interceptor maintenance is performed on a regular basis. The maintenance log serves as a record of cleaning frequency and can help the establishment manager optimize cleaning frequency to reduce cost. Inspect maintenance log. Provide the establishment with a sample maintenance log if it does not have one. Confirm the maintenance log with the grease hauler identified.

Prevent Fats, Oil, and Grease From Entering Creeks and Streams Through the Storm Drain System

Cover outdoor grease and oil storage containers.

Uncovered grease and oil storage containers can collect rainwater. Since grease and oil float, the rainwater can cause an overflow onto the ground. Such an overflow will eventually reach the stormwater system and nearby streams. The discharge of grease and oil to the storm drain system will degrade the water quality of receiving streams by adding biological and chemical oxygen demand to the stream. Discharge of grease and oil to the storm drain might also result in legal penalties or fines.

Observe storage area for signs of oil and grease.

Inspect containers for covers.

Remove covers to ensure containers have not overflowed and do not have excess water.

Locate grease dumpsters and storage containers away from storm drain catch basins.

Routinely clean kitchen exhaust system filters.

If grease and oil escape through the kitchen exhaust system, it can accumulate on the roof of the establishment and eventually enter the storm drain system when it rains. The discharge of grease and oil to the storm drain system will degrade the water quality of receiving streams by adding biological and chemical oxygen demand to the stream. Discharge of grease and oil to the storm drain might also result in legal penalties or fines.

Inspect roof (if safely accessible) for signs of oil and grease.

Require a maintenance schedule and records for cleaning exhaust filters.

Cleaning is usually by washing, which will discharge the grease to the interceptor where it can be controlled.

Prohibitions Relating to Discharge of Fats, Oil, and Grease

Do not discharge fats, oil, and grease in concentrations that will cause an obstruction to the flow in a sewer, or pass through or interference at a wastewater treatment facility.

Grease can solidify and trap other solid particles to completely plug the wastewater collection system.

Do not discharge wastewater with temperatures in excess of 140° F to any grease traps.

This includes water from mechanical dishwashers that have a minimum required temperature of 160° F. Temperatures in excess of 140° F will dissolve grease, but the grease can re-congeal and cause blockages further downstream in the sanitary sewer collection system as the water cools.

Do not discharge waste from a food waste disposal unit to any grease traps.

The food waste will greatly reduce the capacity of the grease trap for retaining grease and can cause worse problems with blockages.

Do not discharge caustics, acids, solvents, or other emulsifying agents.

Though emulsifying agents can dissolve solidified grease, the grease can re-congeal further downstream in the sanitary sewer collection system.
Caustics, acids, and solvents can have other harmful effects on the wastewater treatment system and can be a hazard to employees working in the wastewater collection system.

Do not discharge fats, wax, grease or oils containing substances that will become viscous between 32° F (0° C) and 150° F (65° C).

The temperatures shown are temperatures that can occur in the wastewater collection and treatment system. If these substances congeal, solidify, or become too viscous, they can cause blockages and other operations and maintenance problems.

Do not clean equipment outdoors in an area where water can flow to the gutter, storm drain, or street.

Grease and dirt will be washed off the equipment and enter the storm drain system and flow to nearby streams.