

RESTAURANT GREASE FILTERS

How to Maintain Your First Line of Defense in a Fire

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Most restaurants have their kitchen exhaust systems (aka hoods) cleaned every 3, 6, or 12 months to remove the grease from the entire system. Your hood cleaners are responsible to meet the requirements of NFPA 96 - Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations. Chapter 12 (2021 Ed) provides the standards and guidelines

for the inspection and cleaning of the kitchen exhaust systems. When they complete their job, they issue a certification of services performed and report whether there are deficiencies in your system. That certification tag on the hood expires after a certain period of time depending on the marked tag. Many restaurants allow their filters to build-up through the months until their hood cleaners come in and then have that company clean them. The problem with that is that the filters are way past a fire-ready point after months of neglect. Grease filters act as your first line of defense in a fire and should prevent flames from passing outside of the protection zone of your fire suppression system (second line of defense in a fire).

But why should we need filters cleaned/ exchanged more regularly if our hood cleaners have been doing this for years?

NFPA 96, 12.6.2 Hoods, grease removal devices...shall be cleaned to remove combustible contaminants prior to surfaces becoming heavily contaminated with grease or oily sludge.



Grease removal devices or filters get substantially dirtier than the rest of the system because all of the airflow goes directly through the small baffle openings in them. Grease filters are made to capture between 30% and 98% (depending on the type) of the effluent that goes up toward the duct and fan. In order to keep them from becoming heavily soiled, they need regular cleaning.



NFPA 96, 4.1.5 The responsibility for inspection, testing, maintenance, and cleanliness of the ventilation control and fire protection of the commercial cooking operations, including cooking appliances, shall ultimately be that of the owner of the system, provided that this responsibility has not been transferred in written form to a management company, tenant, or other party.

Unless the responsibility is transferred to a third-party company for maintaining cleanliness of the filters (more on that below), the responsibility ultimately falls on the owner or tenant to ensure the fire-readiness of those filters.

So, how often should your grease filters be cleaned?

Manufacturers of hood systems recommend cleaning filters every day for optimal performance and high-volume kitchens or at least weekly for lower grease-producing systems.

Cleaning recommendations and interval tables taken from Captive-Aire and Greenheck manuals are shown below.

Either way, every filter should be cleaned at a minimum of once per week if doing the work in-house. The primary reason is because grease filters are harder to clean the longer they are subjected to constant heat and continuing accumulation. If you use a filter exchange company, depending on their process of cleaning, they can often go longer between cleanings because their cleaning system should allow for 100% cleaning even on fairly dirty filters.

NFPA 96, 12.6.1.1.1 Hoods, grease removal devices...shall be cleaned to remove combustible contaminants to a minimum of 0.002 in. [50 microns]



Whichever route you go on maintaining your filters, make sure that airflow is not adversely affected between cleaning intervals. When they are cleaned, they have to be completely clean - down to 2/1000ths of an inch. That likely means that if you're performing this in-house, a quick spray down will not be enough. They will need to be soaked and then sprayed thoroughly.

Taken from Greenheck:

Filter Washing Frequency Guide

NOTE
Standard cooking will turn the beads yellow in color. Open flame cooking will cause the beads to blacken. Neither affects the performance of the beads.

CAUTION
To prevent damage to filter media, do not wash second stage filters in detergents that contain hydroxides such as sodium hydroxide or potassium hydroxide.

Preference	Washing Equipment		Cooking Equipment	Chemical	Grease Grabber™ Filter		Baffle Filter or Grease-X-Tractor™ Wash Frequency
	Type	Temp.			Frequency Required	Time or Cycles	
1 Best	Commercial Grade Dish Washer	180° F Minimum	Griddle	Dish Washer Detergent	Every 3 days	2 cycles	Every 3 days, 2 cycles
			Fryer		Weekly	2 cycles	Twice a week, 1 cycle
			Charbroiler		Daily	2 cycles	Daily, 2 cycles
			Wok		Daily	2 cycles	Daily, 2 cycles
2	Low Temp. Dish Washer	140° F	Griddle	Dish Washer Detergent	Every 3 days	3 cycles	Every 3 days, 2 cycles
			Fryer		Weekly	3 cycles	Twice a week, 2 cycles
	Chemical Sanitizer		Charbroiler		Daily	4 cycles	Daily, 2 cycles
			Wok		Daily	4 cycles	Daily, 2 cycles
3	Power Wash Sink (Whirlpool) with Heater	180° F Minimum	Griddle	Pot & Pan Detergent	Every 3 days	10 minutes	Every 3 days, 5 minutes
			Fryer		Weekly	10 minutes	Twice a week, 5 minutes
			Charbroiler		Daily	15 minutes	Daily, 5 minutes
			Wok		Daily	15 minutes	Daily, 5 minutes
4	Power Wash Sink (Whirlpool) without Heater	140° F	Griddle	Pot & Pan Detergent	Every 3 days	15 minutes	Daily, 5 minutes
			Fryer		Weekly	15 minutes	Twice a week, 5 minutes
			Charbroiler		Daily	25 minutes	Daily, 10 minutes
			Wok		Daily	25 minutes	Daily, 10 minutes
5	Pot Sink with Heater	180° F	Griddle	Pot & Pan Detergent and/or Degreaser	Every 2 days	1 hour	Daily Soak 10 minutes, then scrub with scour pad and bottle brush.
			Fryer		Every 2 days	1 hour	Daily Soak 5 minutes, then scrub with scour pad and bottle brush.
	Rinse with sprayer after soaking.		Charbroiler		Daily	2 hours	Daily Soak 10 minutes, then scrub with scour pad and bottle brush.
			Wok		Daily	2 hours	
6 Worst	Pot Sink no Heater	140° F	Griddle	Commercial Grade Kitchen Degreaser	Daily	2 hours Change hot water every 30 minutes	Daily Soak 10 minutes then scrub with scour pad and bottle brush.
			Fryer		Every 2 days	2 hours Change hot water every 30 minutes	
	Rinse with sprayer after soaking.		Charbroiler		Not Recommended		
			Wok		Not Recommended		



Taken from Captive-Aire:

- Grease filters must always be installed and clean to reduce build-up of grease in the exhaust duct and to allow for proper exhaust airflow, refer to **Table 1 on page 42**. Maintain all belts, motors, and electrical connections on fans attached to the hood. Ensure MUA filters are kept clean and there are no leaks in MUA ductwork.

Daily Maintenance

- Remove the grease baffle filters and clean in a dishwasher or soak sink daily.
- Empty and clean grease drain and grease collection cups.
- Carefully wipe away gritty substances clinging to stainless-steel surfaces to avoid scratching.
- Dilute 1/2 cup of laundry detergent (e.g. Tide) with one (1) gallon of warm water.
- Soak a clean cloth in the water detergent solution and wring out the excess water.
- Wipe the hood surfaces moving in the direction of the grain and periodically rinsing cloth in detergent solution.
- Using a different clean cloth soaked in clean warm water, wipe the hood surfaces to remove all traces of the detergent solution.
- Wipe hood surfaces dry with a clean, dry cloth. Clean the hood temperature sensor in riser if equipped with one.

Cleaning Frequency Guide for SOLOs/COMBOs

Cleaning Method		Cooking Application	Cleaning Solution	Frequency Required	Duration
Equipment	Temp				
Washing Equipment: Commercial Dish Machine (High Temp. Rinse)	140°F to 180°F	Oven / Steam	Commercial Dish Washer Detergent	Weekly	1 Cycle
		Fryer		Every 3 Days	2 Cycles
		Griddle / Stove Top		Daily	2 Cycles
		Char-Broiler		Daily	4 Cycles
		Wok		Daily	4 Cycles
		Solid Fuel		Daily	4 Cycles * <i>Note1</i>
Washing Equipment: Low Temperature Dish Machine (Chemical Sanitizer)	120°F to 140°F	Oven / Steam	Commercial Dish Washer Detergent	Weekly	2 Cycles
		Fryer		Every 3 Days	2 Cycles
		Griddle / Stove Top		Daily	2 Cycles
		Char-Broiler		Daily	4 Cycles * <i>Note1</i>
		Wok		Daily	4 Cycles * <i>Note1</i>
		Solid Fuel		Daily	4 Cycles * <i>Note1</i>
Soak Method: Pot Sink 3-Compartment Sink Mop Sink (<i>with heater</i>)	140°F to 180°F	Oven / Steam	Pot & Pan Commercial Detergent Or Degreaser	Weekly	2 Hours
		Fryer		Every 2 Days	2 Hours
		Griddle / Stove Top		Every 2-Days	Overnight
		Char-Broiler		Daily	Overnight
		Wok		Daily	Overnight
		Solid Fuel		Daily	* <i>See Note 1</i>
Soak Method: Pot Sink 3-Compartment Sink Mop Sink	110°F to 130°F	Oven / Steam	Commercial Grade Kitchen Degreaser	Weekly	2 Hours
		Fryer		Every 2 Days	2 Hours
		Griddle / Stove Top		Every 2-Days	Overnight
		Char-Broiler		Daily	Overnight
		Wok		Daily	Overnight
		Solid Fuel		<i>*Not Recommended</i>	

Note 1: Special Applications

Solid Fuel Cooking Applications, and high-volume Wok or Charbroiler cooking may require supplemental overnight soak performed weekly, in addition to daily cleaning procedures, using a heavy duty Commercial Degreaser.

Can't we just spray them outside like our old hood cleaners?

Absolutely NOT. This is against the law in every municipality, every state, and across the entire country. Even with using chemicals to clean them, it's still illegal. Fats, oils, and grease (FOG) are classified as conventional pollutants under the Clean Water Act, Section 304(a)(4) and 44FR44501. Keep in mind, all storm drains eventually feed to streams, rivers, lakes, and oceans - so even if you don't see the damage, it can and will harm the environment downstream. Local jurisdictions will have specific laws about wastewater and storm drain discharge, so reach out to your local municipality for the specific applicable laws and regulations in your own area.

Penalty:

- Negligent Violations: 1 year and/or \$2,500 - 25,000 per day;
 - Subsequent convictions 2 years and/or \$50,000 per day.
- Knowing Violations: 3 years and/or \$5,000 - 50,000 per day;
 - Subsequent convictions 6 years and/or \$100,000 per day.

Relevant Regulations: 40 C.F.R. 110, 116 & 117

From the EPA: *Stormwater runoff is generated from rain and snowmelt events that flow over land or impervious surfaces, such as paved streets, parking lots, and building rooftops, and does not soak into the ground. The runoff picks up pollutants like trash, chemicals, oils, and dirt/sediment that can harm our rivers, streams, lakes, and coastal waters. To protect these resources, communities, construction companies, industries, and others, use stormwater controls, known as best management practices (BMPs). These BMPs filter out pollutants and/or prevent pollution by controlling it at its source.*

The NPDES stormwater program regulates some stormwater discharges from three potential sources: municipal separate storm sewer systems (MS4s), construction activities, and industrial activities.

Operators of these sources might be required to obtain an NPDES permit before they can discharge stormwater. This permitting mechanism is designed to prevent stormwater runoff from washing harmful pollutants into local surface waters.



All of the grease captured by your hood filters needs to go either into the trash (solids) or through a grease interceptor (grease trap) to ensure it's not clogging the sewer systems either. All restaurants should have a grease interceptor, but if you don't, make sure to utilize a grease filter exchange company instead of cleaning them in-house until you have a grease interceptor properly installed.

Whether you're a restaurant owner or professional kitchen exhaust cleaning service company and you need more information regarding grease filter maintenance or grease filter exchange services, reach out to the author for help in establishing the right maintenance procedures for your staff.

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