



Overcoming the Hidden Problem

of Fat, Oil and Grease in Kitchens





Contents

1. Introduction
2. Findings
3. Solutions
4. Conclusion

Introduction: Why FOG is a Growing Problem for Kitchen Managers

The build-up of fats, oils and grease (FOG) in drainage systems is a growing problem for commercial kitchens and the UK's wider sewage system. While there is a long list of legislation, the problem persists in almost every region of the country. Perhaps the most visible and widely reported consequence of poor FOG management can be seen in the emergence of so-called 'fatbergs' – giant rock-like accumulations of waste products held together by fatty deposits that have failed to be separated from wastewater.

In February 2021, Thames Water cleared a "huge, disgusting" fatberg from an east London sewer, continuing a pattern of other large blockages found in major cities.¹ Every year, the UK's regional water companies spend £100 million clearing roughly 300,000 fatbergs, which reports suggest are increasing in size.² These large formations not only disrupt sewers but also impact the effectiveness of processing plants found further down the line, not to mention create a huge volume of watercourse pollution.

Yet FOG also poses direct challenges for kitchen managers, to the point where it can potentially close a business's doors for good. Accumulation of FOG restricts proper discharge of wastewater through a building's drainage system, increasing the likelihood of flooding, foul odours, infections and the attraction of pests. Unsurprisingly, these issues along with fatbergs have caught the attentions of both health and safety and environmental agencies.

Increased scrutiny comes at a difficult time for most foodservice businesses, with much of the industry now in a tentative recovery following the COVID-19 pandemic. Profit margins remain thin even with indoor dining slowly returning, making the prospect of even a short shutdown untenable for most.

Given these circumstances, ACO Building Drainage wanted to delve deeper into the hidden problem of FOG in today's commercial kitchens. In September 2021, the business surveyed 500 restaurant owners and managers to determine whether the issue is now being given the attention it needs, or if an 'out of sight, out of mind' attitude prevails despite the growing threat of penalties. Through this research, ACO aims to identify solutions for kitchen managers that not only make compliance easier but also maintain the bottom line during challenging economic conditions.

1 <https://www.theguardian.com/environment/2021/feb/19/workers-clear-huge-disgusting-fatberg-from-london-sewer>

2 <https://www.hwmglobal.com/blog/2021/06/09/fighting-fatbergs-with-advanced-monitoring-technology/>



WHAT IS FOG?

FOG STANDS FOR THE DIFFERENT FATS, OILS AND GREASE THAT ACCUMULATE IN THE WASTEWATER OF COMMERCIAL FOODSERVICE KITCHENS. IT'S CREATED WHEN FOOD IS PREPARED AND COOKED, AND REACHES A KITCHEN'S DRAINAGE SYSTEM WHEN PROCESSING EQUIPMENT, UTENSILS AND CROCKERY ARE WASHED. SINKS, DISHWASHERS, COOKING FACILITIES AND FOOD WASTE ALL CONTRIBUTE TO KITCHEN WASTEWATER, OFTEN CONTAINING FOG THAT HAS NOT BEEN MANAGED PROPERLY.

I. Findings

The results show that FOG is not a forgotten issue for the large majority of restaurant owners and kitchen managers.

90% said they understood their responsibilities around grease management and the need to minimise the amount of food waste that ends up in drainage.

83% confirmed they are expected to manage FOG properly as a condition of their lease agreement.

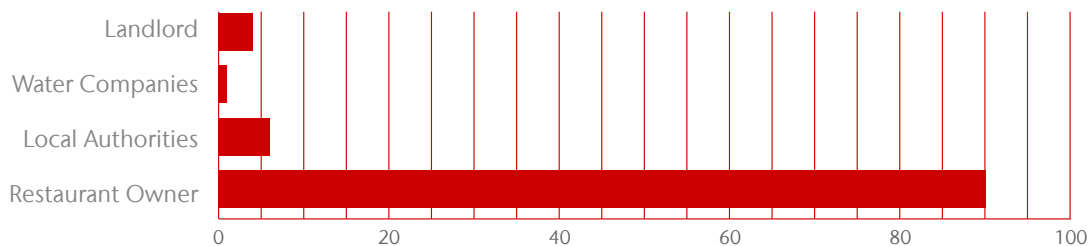
Whether these figures are translating into action, however, is still up for debate.

The large volume of legislation that exists around FOG arguably makes the issue more complex for businesses. Document H of Building Regulations states any commercial premises that's serving hot food connected to the mains drainage system should be fitted with a grease trap or separator. Alongside this is the Water Industry Act 1991, which makes it a criminal offence to permit any matter to enter drainage systems which may impede the natural flow of wastewater. There's also the Environmental Protection Act 1990 and Food Safety Act 1990, both of which deal with hygiene-related issues around poor FOG management.³

Despite these laws, and the majority seeming to understand their obligations under them, 47% have still experienced blocked pipes cause by grease. On first inspection, this finding could be explained by poor FOG management in nearby or adjacent buildings. But other results suggest this is more likely due to the ineffective practices found in respondents' own kitchens.

56% for example, have dealt with a build-up of grease, while 26% have also had trouble with foul odours as a result of FOG.

Who do you believe is responsible for grease management in your kitchen?

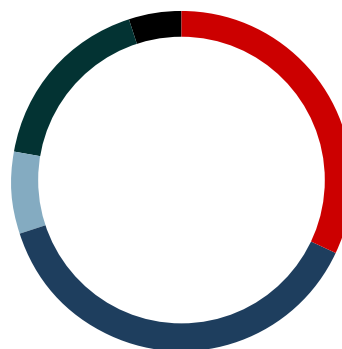


³ <https://www.legislation.gov.uk/ukpga/1990/16/contents>

These results reflect a cavalier attitude to FOG management, even in the face of possible fines and prosecutions that reports show are on the rise. In May 2021, one of the UK's largest pub management companies was ordered to pay more than £90,000 after allowing large amounts of FOG to enter the sewer network in Oxfordshire.⁴ But it's not just large chains that are facing fines. In 2018, a regional caterer in Shrewsbury was also prosecuted and fined £9,266 after inspectors found it had intentionally poured fat into a nearby sewer.

This action followed repeated warning from Severn Trent Water asking for grease traps to be installed.⁵ Similar problems can be found among respondents, with 12% having faced temporary closure due to fatbergs.

Have you ever experienced any of the following?



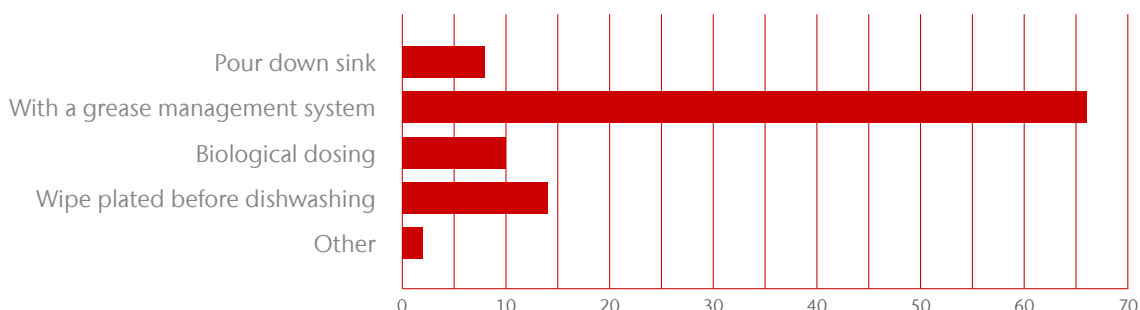
- 32%** Blocked pipes caused by grease
- 38%** Build-up of grease in the kitchen
- 8%** Fatbergs causing temporary closure
- 17%** Foul odours in the kitchen due to FOG
- 5%** Foul odours in the street due to FOG

These are just some of the threats FOG poses for the foodservice industry. Blocked pipes, flooding and foul odours all have a direct impact on the food hygiene ratings system that is openly available to the public – not to mention raise the chances of attracting pests. Research shows a bad score can have direct impact on the reputation and profitability of a restaurant or takeaway, with the majority of consumers now checking a business's 1-5 score before ordering.⁶ Yet most seem to be overlooking these benefits as 40% said they require their drains to be unblocked at least once a month.

The most telling findings are those that relate to current methods for managing grease. Over 30%, for example, admitted they dispose of FOG incorrectly – i.e. not through a dedicated management system. Moreover, only 14% wipe debris from plates and cooking aids before adding them to the dishwasher, despite now being recognised as industry best practice, and 10% rely on biological dosing. Those using an enzyme-based dosing agent can actually worsen fatbergs as they emulsify FOG, making it more difficult for water companies to clear in sewers.

Perhaps most shocking of all was the 8% who said they simply pour FOG down the sink.

How do you dispose of your fats, oils and grease?



4 <https://www.thameswater.co.uk/about-us/newsroom/latest-news/2021/jun/mitchells-and-butlers-prosecution>

5 <https://www.thecaterer.com/news/restaurant/restaurant-fined-9000-after-fat-blocked-sewers-and-polluted-waterway>

6 <https://www.food.gov.uk/research/research-projects/food-hygiene-rating-scheme-consumer-attitudes-tracker-wave-7>

II. Solutions

Given the results, it's not unreasonable to imagine water companies and hygiene inspectors now paying closer attention to those flouting the rules. As such, kitchen managers will need to understand the different options available, so they can choose a system that's commensurate with their budget.

Typical grease management involves wastewater flowing from food preparation and kitchen areas into a system which is then directed to the foul sewer. It's important to regularly check a system is operating correctly, not least because ignorance is inadmissible when inspectors arrive. Working this way also means small adjustments can be made – e.g. dosing rates or frequency may need to increase.

There are four main methods for tackling FOG in commercial kitchens:

Grease Traps

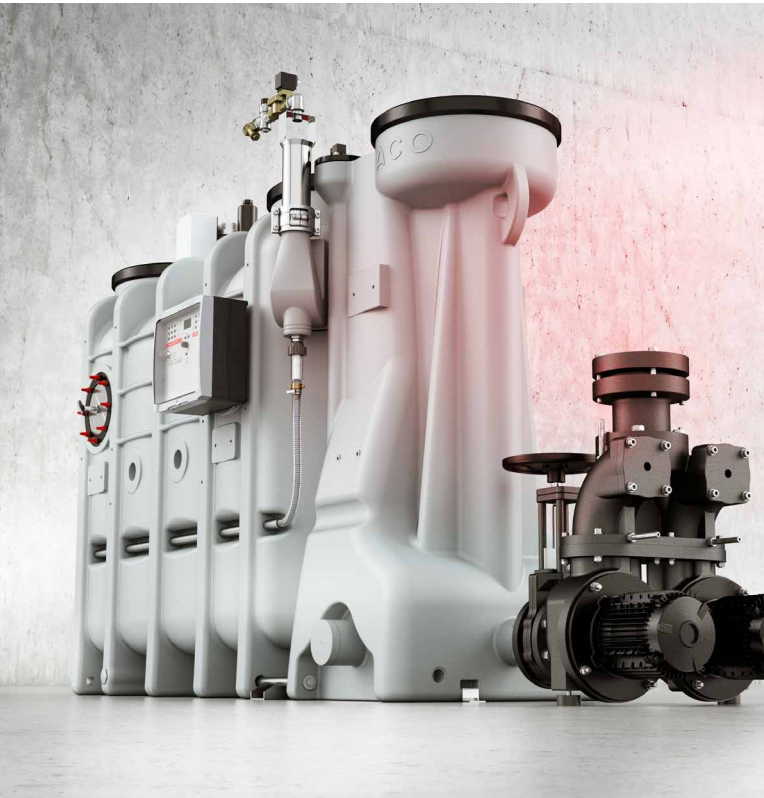
Grease traps are mainly found under sinks, which use gravity to separate FOG and food waste from wastewater. They are compact with limited capacity, meaning daily maintenance is required to keep running effectively.

Grease traps can be combined with biological dosing to increase the maintenance interval.



Grease Recovery Units

This system has two types: active and passive. Active units use rotating wheels or oleophilic drums to skim FOG off the surface. Passive units use water flow to push the FOG into a separate container. In a passive system, accumulated FOG is heated to ensure it remains in a liquid form so it's easier to discharge from the unit. Many installed devices in the UK are tested to the American Standards, ASME 112.14.4.



Grease Separators

Grease separators can be used for above- and below-ground applications and are the only system with a British Standard – BS EN 1825. They prevent most FOG deposits from entering the sewer, with the separator having to be emptied at least once a month. This can be done either manually or automatically depending on the model. Grease separators are the only unit, according to BS EN 1825, that can be sized on either volume of food produce per day or the hydraulic throughput generated from the type and number of kitchen equipment installed.

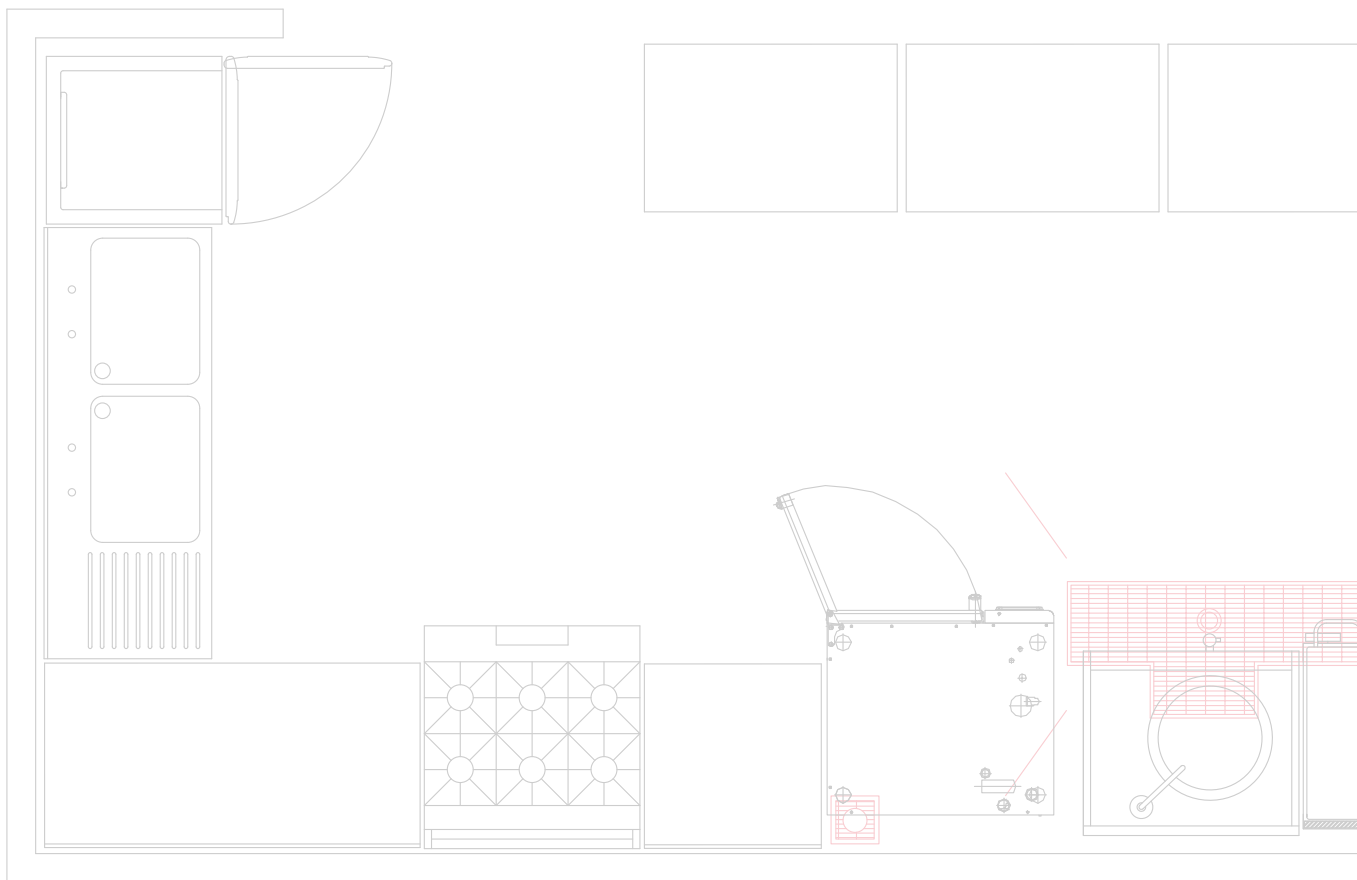
Bio-Chemical Direct Dosing Units

These systems use enzymes or micro-organisms to ensure the wastewater runs freely through the system. Enzymes emulsify the wastewater and are therefore not deemed an ideal solution, as the emulsified FOG in the discharged wastewater may solidify again further downstream and cause blockages for water companies. The micro-organisms consume the FOG and release water and carbon-dioxide. Micro-organisms are sensitive to their environment and don't survive in adverse wastewater conditions.

Key Points for Design and Operation

As a principle, kitchen managers should look out for grease management systems that are certified to BS EN 1825 standards. New-build businesses should also pay close attention to local water network requirements, as connection to the water supply can be affected by the specification of a grease separator. Design and location are also key to ensure adherence to best practice. Separators and grease traps, for example, cannot be placed in unventilated rooms or close to opening windows. Access must all be factored in at the design stage, as ongoing maintenance is critical.

Systems fitted below sewer level should either have a lifting station, where the separator wastewater is collected, or a sump where all the building's wastewater is collected before pumping it out to the sewer. ACO recommends the use of lifting stations in non-residential buildings rather than backflow preventers, as this ensures wastewater is still pumped to the sewer during a backflow event.



Conclusion

The results from our survey show FOG is a known problem that is often not given the attention it deserves. Whether this is down to carelessness, a perceived lack of jeopardy for repeat offenders or confusion around best practice is not entirely clear – though it's likely a combination of all three. Difficult trading conditions restate the need for effective solutions that make compliance straightforward without hitting the bottom line, especially as fines and prosecutions now have the potential to shut businesses down for extended periods.

FOG should not be an afterthought but instead an active part of running a modern kitchen. For more information, get in touch with the ACO team today at UK-Grease@aco.co.uk or phone 01462 810424. They can help you size the right grease management system for your kitchen.

Visit www.aco.co.uk/grease-management for more information

