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Foodservice – Fat, Oil and Grease Management Guide

Please note: This document may be updated to reflect changes in technology, policy and practices relating to fat, oil and grease (FOG) management. Please check you have the latest version.

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Foreword

Fat, oils and grease (FOG) are inevitable by-products of the foodservice sector. But if FOG is allowed to enter drains and sewers it can cause problems that businesses have to put right, potentially at their own cost.

The impact of blockages caused by FOG build up can lead to flooding and pollution, disrupting communities and harming the environment.

Effective FOG management has the power to protect society from these risks – and even help the country towards its net zero targets.

FOG is used or produced in nearly all types of food preparation and cooking and is contained in leftovers and kitchen waste. Unless it is managed properly, FOG can be washed down sinks or drains, where it can set and harden in the wastewater system. This can cause foul smelling and difficult to get at blockages in kitchen drains, that will affect the foodservice establishment (FSE) directly, as well as contributing to ‘fatbergs’ further along the sewer network. While this may sound like a water industry problem, FOG impacts every part of society. Blockages in sewers can cause homes and communities to flood or force businesses to close their doors. Meanwhile, overflowing sewers can pollute rivers and waterways. This can harm wildlife and the environment, while affecting the public’s enjoyment of these natural spaces. In this way, what happens in individual kitchens can have a adverse effect on everyone.

Fortunately, effective FOG management can actually allow waste that can be so damaging to society to do good for us all. If collected and processed, FOG can be reused as an energy source, creating biodiesel, biogas or electricity. Instead of causing costly problems in sewers and drains, collected FOG can help to reduce carbon emissions and support the nation’s journey towards net zero. In this way, FOG and other food waste have a vital part to play in the future of the circular economy. But to achieve this, effective FOG management solutions must be installed, properly maintained and operating.

This document has been prepared to give people involved in FOG management roles a shared set of knowledge about the importance of disposing of FOG responsibly, along with practical ways to do so. It has been created by FOGwise, a collaborative alliance of organisations from the foodservice and catering equipment sectors in partnership with representatives from the water and environmental health sectors.

Together, the members of FOGwise have pooled their expertise to provide a common understanding of the challenges posed by FOG, the current laws and standards that apply to FOG management, and the best practice equipment and approaches available to prevent FOG from entering drains and public sewers.

Ultimately, the way FOG is created, managed and disposed of within the UK foodservice industry can help to protect all levels of society and the natural world from the risks posed by blockages and sewer flooding. Everyone can make a difference. This document sets out how we can each play our part.

New legislation around food waste and FOG disposal is expected for England in 2023 following the consultation on reporting of food waste as part of the Resources and Waste Strategy for England.

This guide is intended to be a living document. To reflect such developments in environmental legislation and other regulations affecting both the hospitality and water sectors across the UK the document will be reviewed regularly and updated where necessary.



Phillip Mills
Chair of FOGwise



1. Introduction

1.1 The problem with FOG

FOG stands for fat, oil and grease. If it goes down sinks or drains, it can build-up in the pipework and slow down the flow of wastewater. Over time, this can completely block pipes. In fact, FOG contributes to thousands of sewer blockages each year, which cost the UK nearly £200 million a year to clear. In this document, the term FOG also includes other food waste that can enter and block drains and sewers.

The eating habits of the nation are changing. People eat out much more frequently than they did in the past and the number of food outlets is continually changing. Preventing FOG from commercial kitchens entering the sewer is more important than ever.

Where does FOG come from?

Each foodservice establishment (FSE) produces waste FOG as part of its daily activities, regardless of its menu or cooking style. FOG can come from oils, meat, fish, dairy products – and many more sources. It is produced in nearly all types of food preparation and cooking, such as the oil used to cook food and the melted animal fat released as food is cooked. FOG is also present in leftover food in the kitchen and on customers' plates.

The UK has around 360,000 FSEs and each will produce FOG that needs treatment. However, a recent study found that only 12% of FSEs used FOG management equipment, while only around 0.15% complied with FOG management best practice.

As a result, FOG is washed down FSEs' sinks or drains on a daily basis – whether deliberately by pouring unwanted oil down drains or inadvertently during the process of cleaning used dishes, cutlery and kitchenware.

FOG can melt or become liquid when mixed with warm water. While FOG may seem harmless in liquid form, neither animal fats or vegetable oils dissolve in water. As they cool,

they can set and harden. In liquid form, FOG can travel through the network before this happens. This means problems can happen anywhere along the drainage system – from a clogged kitchen sink, fatbergs further along the sewer network or a damaged wastewater pumping station. FOG is found at every stage in the wastewater cycle: at source (in the kitchen), in drain or sewer blockages, at pumping stations, or at the wastewater treatment works. Often FSEs will suffer routine drain problems but are unaware this is caused by FOG – or they simply may not know what they can do to address it. Even using detergents or bleach only helps for a short time, as the mixture soon turns back to thick or solid fat in the drainage network.

Problems caused by FOG

FOG sticks to the inside of pipes and solidifies. Over time, the build-up can constrict the flow of wastewater. When people flush things like wet wipes, napkins and other unflushables down their toilets, these items can mix with the congealed FOG to form fatbergs that block sewers. When wastewater has nowhere else to go it can back up and flood homes, streets and gardens or overflow from sewer covers and pollute streams and rivers. Blockages have even caused roads to collapse.

Unfortunately, large fatbergs have become increasingly common and are expensive to remove. Over 300,000 sewer blockages occur in the UK every year. Up to 70% are caused by FOG and other material disposed of incorrectly down drains. Clearing those blockages and cleaning up the flooded properties or pollution incidents they cause costs approaching £200 million each year. FOG also creates costs associated with planned and unplanned sewer maintenance, pumping station failures and less effective treatment works. These costs are ultimately included in households' and businesses' water bills. As well as the cost, unblocking sewers often requires roads to be closed or roadworks to be put in place, which disrupts traffic and inconveniences the public.

Under the *Water Industry Act*, discharging anything into sewers that may interfere 'with free flow of its contents' is an offence.

How FOG can affect FSEs

Blocked drains inside or near a FSE can be bad for business – the risks include:

- **Public and environmental health** – FSEs are responsible for providing safe and clean working conditions for staff and serving customers food that is stored and prepared hygienically. Yet blocked drains can flood and potentially contaminate food preparation and storage areas. Such contamination presents a serious risk to public health and may result in enforcement action following a poor food hygiene assessment. And, if an Environmental Health Officer issues a Hygiene Emergency Prohibition Notice the FSE may be forced to close. Owners of FSEs may also be subject to large fines and criminal proceedings, not to mention significant reputational damage and the subsequent impact on their business and turnover.
- **Loss of trade** – Flooding or blocked drains can put toilets, sinks and kitchens out of order and stop FSEs being able to trade. Dirt and unpleasant smells could also keep customers away while attracting pests and insects.
- **Property damage** – Blocked pipes can cause systems to overflow or pipes to burst. This can result in leaks and flooding, which can lead to water or flood damage in a building and damage stock, equipment and other belongings. If other properties are damaged, the owners could claim against the FSE.
- **Reputation** – The FSE's reputation can suffer due to problems caused by FOG, such as blockages, flooding, environmental and public health issues. Customers may choose to go elsewhere, leading to loss of trade and reduced revenues.
- **Water company action** – Water companies will engage and educate FSE operators, but will take action where operators ignore their advice and cause repeat blockages in the sewer network. These actions include recovering costs incurred in clearing blockages. The FSE operator may also be prosecuted and subject to court fines – based on percentage of turnover.

As well as causing a loss of trade, these problems can cost money to fix and – in the worst cases – lead businesses to temporarily or permanently close. However, doing things correctly and disposing of FOG responsibly creates a win-win for FSEs, water companies, the general public and the environment.

1.2 The purpose of this document

The aim of this document is to provide a common understanding about the topic of FOG in commercial kitchens, including:

- **Where it comes from**
- **The problems it can cause**
- **The laws about it**
- **How it can be successfully managed**
- **Its value in the circular economy.**
- **How FSEs through good FOG management can take a practical step in taking climate action.**

The different options to manage FOG and reduce the amount entering the sewers are explained – including best practice and training for kitchen operators, along with an overview of equipment solutions available.

Together, this information is intended to give people with FOG-related duties a shared set of knowledge about the importance of disposing of FOG responsibly, along with practical ways to do so.

This guide also refers to food waste and includes easy to follow graphical decision trees for the Food Waste and FOG Hierarchy, covering primary, secondary and tertiary evaluations, as well as a Critical Path Installation Guide for FOG management equipment.

Please note: This document is not intended to be prescriptive or exhaustive.

1.3 Who is this guide for?

This document is for reference by all stakeholders and FSEs in the UK whose duties relate to the design, upgrade, operation and maintenance of commercial kitchens, including those listed below.

Foodservice establishments (FSEs)

FSEs include any place where food and drinks are prepared and served in separate portions, whether for individuals to take away or dine in. This includes temporary, mobile and remote kitchens and catering at events, such as festivals, street-food markets and sports.

Primary FSEs

- Retail food and drink
- Pubs and clubs
- Restaurants
- Accommodation
- Retail food
- Dark or ghost kitchens
- Mobile kitchens

Secondary FSEs

- Education
- Healthcare
- Leisure and recreation
- Workplace
- Retail non-food
- Visitor attraction
- Public sector venues
- Entertainment
- Travel
- Community services
- Food and drink manufacturing

As well as helping FSEs avoid the risks and costs associated with FOG-related blockages, the guidance in this document will help FSEs achieve better value for money by selecting credible and competent contractors and introducing effective FOG management strategies. The information in this Guide is therefore relevant not just to FSE owners and operators, but also to:-

FOG management contractors

Many specialist contractors design and install FOG management systems in commercial and industrial kitchens. Meanwhile, other contractors specialise in servicing and maintaining these systems to ensure they continue to work correctly.

This guide will help decision makers identify reputable contractors whose solutions and activities align with best practice. This will incentivise contractors to meet an agreed and shared set of effective principles, and will provide support for effective FOG management practices across the supply chain. Over time, this will provide a recognised professional and effective service to FSEs.

Property owners and landlords

Better FOG management by tenants will reduce the risk of blockages and floods on landlords and property owners' estates and prevent the costs of disruption to trade or damage to their estate, assets or reputation.

Consultants

Consultants are often involved in preparing specifications for new developments, fit-outs and refurbishments. The guidance in this document will establish a consistent set of criteria they can use to confirm the effectiveness of a FOG management system. This will ensure robust specifications are applied in terms of equipment type, sizing and maintenance.

Insurers

Problems caused by FOG-related blockages and floods can lead to insurance claims. Improved awareness and increased compliance with FOG management best practice will protect insurers against future losses by significantly reducing pay-outs, which could also result in lower premiums for clients.

Water and sewerage companies

Responsible disposal of waste FOG by the food and beverage service sector will prevent pipe blockages, property flooding and protect the environment.

Government

The Government is striving to move society away from an inefficient 'linear' economic model to a more circular economy, based on the principles of re-use, remanufacture, repair, recycle. This will enable us to keep resources such as FOG in use for as long as possible. FOG is already being used as an alternative fuel source and interest and innovation in this area is growing.

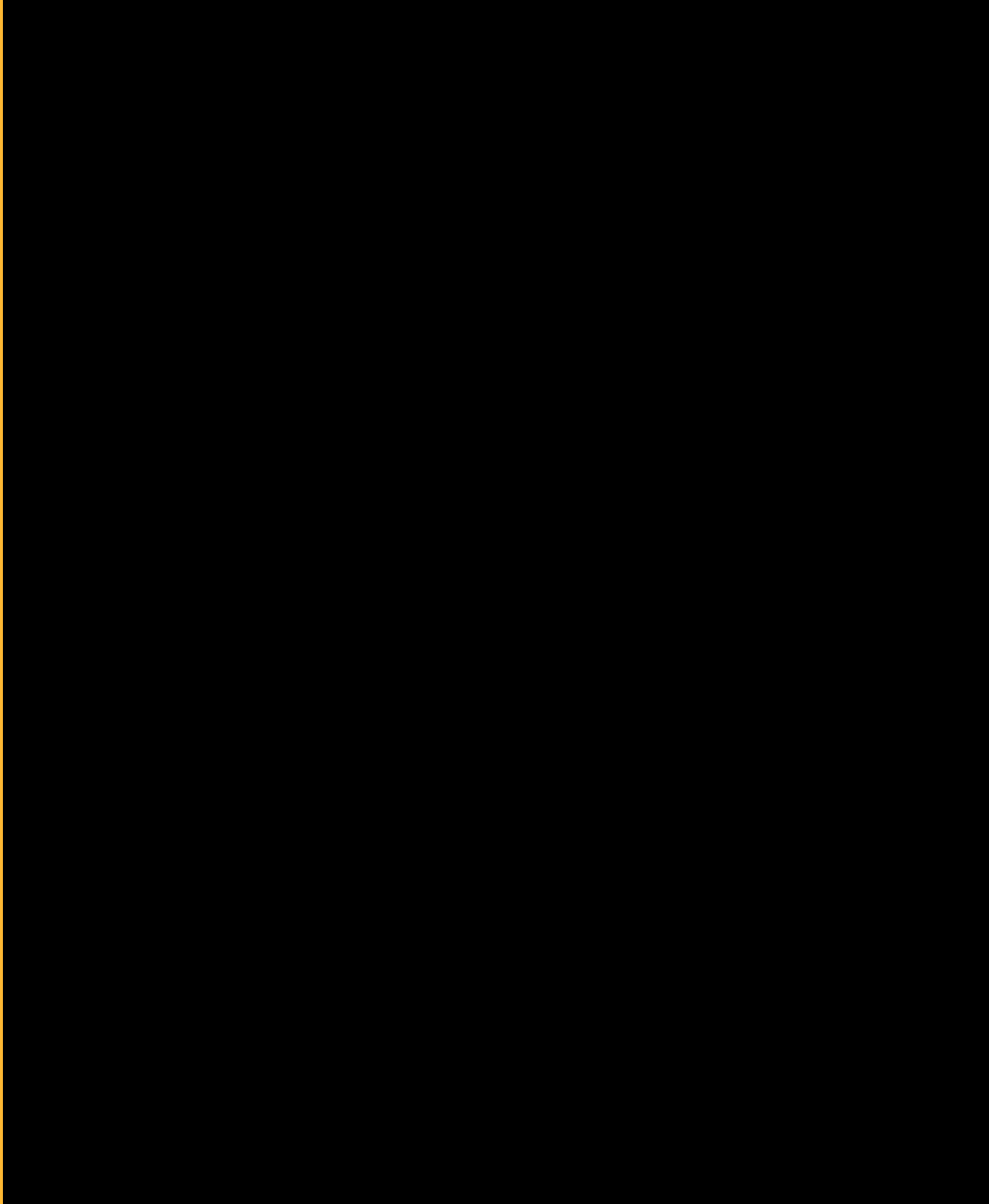
1.4 How was the document created?

This document was produced by the FOGwise group, an alliance of organisations from the food service and equipment sectors working with representatives from the environmental health and water sectors.

Members pooled their expertise and the information was collated and reviewed to reach a shared understanding of the challenges posed by FOG, the laws that apply to its management, and the best practice solutions available to reduce how much enters sewers from commercial kitchens. The result of this collaboration is this document, which reflects what members agree to be a consistent set of best practice principles and practices for effective FOG management in FSEs.

The FOGwise group developed from the previous FOG Forum. This brought together the community of organisations and companies with an interest in how FOG is created, managed and disposed of within the UK hospitality industry.

A list of key contributors is included in Appendix 1.



2. What is the law about FOG?

In the UK, a number of laws are in place to help prevent FOG entering drains and sewers. Failure to comply with these can lead to enforcement and prosecution.

2.1 Legislation

Several pieces of UK legislation relate to FOG and grease management.

In Scotland, the *Water Resources Act* amended the *Sewerage (Scotland) Act 1968* to specifically prohibit the discharge of FOG to the public sewer. Meanwhile, England, Wales and Northern Ireland rely on FOG being considered a 'matter likely to injure the sewer or drain, to interfere with the free flow of its contents or to affect prejudicially the treatment and disposal of its contents' under the *Water Industry Act*. While neither of these pieces of legislation make installing FOG management equipment mandatory, several building regulations and Euro-norms do.

While FSEs must comply with legislation, water companies do not have any right of access to a FSE to evaluate or control FOG management. The lack of joined-up regulation and the difficulty of linking a blockage to a specific FSE means FOG management practices in the UK rely to a large degree on the discretion of FSEs.

An overview of current UK legislation relating to FOG is provided in Appendix 2, along with key extracts. Where reference is made to Acts of Parliament and Regulations, please note that subsequent amendments or replacements equally apply.

Please note: While every effort has been made to ensure the accuracy of this information, this document should not be taken to constitute legal advice. Please seek guidance from a suitably qualified professional or official. The members of the FOGwise group cannot be held responsible for any errors or omissions in this document.

2.2 Enforcement

Many of the UK's water companies have set up sewer network protection teams to engage with FSEs, on both a reactive and proactive basis, about FOG discharged to sewers.

Where persistent offenders are identified, water companies can reclaim the costs of removing blockages from the offending FSE and have the power to charge the offending FSE for the damage to the public sewer. This has been successfully carried out by most water companies across the UK.

In more serious circumstances, water companies will pursue prosecution of the offending FSE. If found guilty, this will result in a fine and costs. Severn Trent Water, Southern Water and Thames Water have all successfully pursued prosecutions for offending FSEs.

In some cases, landlords or other bodies may have their own specific grease management requirements beyond this guidance.



3. Solutions

The aim of any effective FOG management system should be to make sure as little FOG as possible enters the drains and passes into the sewer. No single solution will achieve this alone. Kitchen design, ways of working, staff training, equipment selection and its service and maintenance all have a part to play.

Equipment that helps manage FOG should never be seen as a substitute for staff training and correct working practices. All these elements need to be in place to ensure FOG is managed, treated, collected and disposed of correctly. FOG prevention is key.

3.1 Equipment solutions

3.1.1 Overview

Equipment solutions are an important part of any best practice FOG management system for FSEs. The four most common types of FOG management equipment in the UK are:

- **BS EN 1825 grease separators**
- **Passive grease traps (that do not meet the requirements of BS EN 1825)**
- **Grease removal units (GRUs)**
- **Biological dosing systems**

Grease separators, passive grease traps and GRUs all use gravity to separate FOG and food waste from wastewater. FOG has a lower density than water and floats to the top, while food debris has a higher density and sinks to the bottom. This allows the waste to be captured or directed elsewhere, while the water flows away. Meanwhile, dosing systems introduce dormant or active bacteria into the wastewater stream, that are specially chosen for their ability to break down FOG.

Each of these systems is more effective when combined with and supported by best practice kitchen procedures and staff training. None of these solutions is a fit-and-forget system either – any FOG control system is only as effective

as the maintenance it receives. Appendix 3 provides a table of the best practice maintenance requirements of the different equipment solutions.

Food Waste Management and FOG solutions can be a complex issue to manage and reference to this is made later in the document. Where food waste disposal units are installed, they should never be used to discharge FOG into drains or sewers, as this increases the risk of sewer blockages, sewer flooding, environmental pollution, odours and rodent infestations.

A separate food waste criteria (see appendix 6) should be used to evaluate the most practical means of managing food waste. FSE operators should take responsibility for managing both food waste and FOG in the most effective manner.

3.1.2 Choosing the best FOG solution for you

The composition of FOG and wastewater generated by each FSE will vary with the food offering. When choosing an equipment solution, please seek advice from a competent contractor and follow the manufacturer's guidance relating to products used.

While the challenge of FOG management and disposal is important to every business, the practical requirements vary for each site. Every kitchen is different and needs to be

individually assessed for the purposes of FOG management, just as it does for all elements of kitchen planning, installation, workflow and maintenance. However, some common elements need to be considered before any FOG solution is put in place.

Whichever system or combination of FOG management systems is to be used, the starting point for any installation is an up-to-date drainage plan, or the proposed drainage plan for a new build.

Those responsible for reviewing, designing, specifying and recommending FOG management systems and/or supplying and installing the equipment should visit the site to carry out an assessment, or review a plan of the site if it is a new build. All kitchen areas from where FOG can be discharged must be identified and details of the drainage arrangement understood in relation to the catering activity undertaken.

Even where direct drainage is unavailable, such as on shopping centre concession stands, waste must still be disposed of responsibly and managed using a robust FOG management strategy.

Site assessment

The overall aim of this assessment is to understand the volume of FOG that could enter the drainage system and recommend a solution that can appropriately treat or collect it instead.

Several factors need to be considered to develop a system that minimises the amount of FOG that can escape into the sewer. These include:

- **Kitchen activity** – The style of menu, cooking methods and cleaning activities will all affect the type and amount of waste FOG created. All equipment used in food preparation, cooking and warewashing should be assessed, along with all drainage protection points (explained later in this section). The length of hours trading and the number of meals served will also affect how much waste FOG is produced. Water generated by defrosting frozen foods with a fat content also needs to be considered.
- **Kitchen layout** – The space available will impact what FOG management solutions are possible, including whether FOG disposal equipment will need to be placed inside and/or outside the kitchen. How closely the equipment can be located to the contamination point can impact on its effectiveness. Access to equipment for maintenance, repair and inspection must also be considered.
- **Electricity** – Where equipment needs an electrical supply, unobstructed access is essential. Equipment must be able to be safely isolated and have an RCD/RCBO device fitted in accordance with manufacturer specifications. Only competent electricians should carry out electrical work.
- **Sewer connections** – Identifying and connecting to the correct sewer is essential. The foul sewer carries used wastewater to a sewage works for treatment, while the surface water sewer carries rainwater straight to watercourses. Wastewater from FSEs must be directed into the foul sewer. The use of surface water sewers is not permitted because any connection would cause pollution to watercourses. This is particularly important for mobile and temporary catering.
- **Drainage** – The drainage system should be reviewed, including its route through the kitchen and beyond the premises. Any areas where the FOG load is heaviest or the potential for bottlenecks greatest should be identified. Correctly-sized pipework is also essential to maintaining flow rates through FOG management equipment while in operation. Incorrect sizing may lead to blockages and operational issues that could reduce the equipment's ability to stop FOG entering the drainage system. Drain runs and floor gully positions will need to be reviewed, especially for systems which rely on gravity to drain. The fall of pipework must also be correct to achieve required flow rates. Incorrectly installed pipework will have a detrimental effect on how well equipment prevents FOG entering the drainage system.
- **Installation** – The access required to install the equipment must be considered, along with its correct configuration. Inlet and outlet points of equipment should be identified and connected to the correct pipework.
- **Service and maintenance** – Equipment must be easily and safely accessible for operator maintenance, specialist maintenance and inspection. This includes access to inlet and outlet pipework, internal chambers of traps, sediment and solid waste baskets and any externally-mounted waste containers. Toxic or noxious odours must not be allowed in the kitchen area.
- **Third parties** – In some cases, a landlord, parent company or franchisor may specify a particular method of FOG management. The local authority may also specify how FOG disposal systems should be positioned. These third party requirements must also be taken into account.
- **Training** – Staff training procedures and working practices should be reviewed, particularly the cleaning regime. Staff turnover rates should also be considered, as untrained staff are least likely to follow procedures.
- **Audit** – Regular checks should be put in place to assess drain health and successful FOG removal and management.

Failure to consider any these factors properly is likely to lead to poor FOG removal practices. As well as offering poor value for money, ineffective FOG management could generate greater ongoing costs and/or loss of income for the business.



Drainage protection points

Any item of equipment in a foodservice operation has the potential to contribute to FOG entering the drainage system. Even appliances that do not drain directly into the water system, such as decarbonisers, can produce FOG which could be disposed of in sinks or drains unless correct procedures are followed and staff are adequately trained.

Some general guidance can be provided based on an 'average' foodservice operation, taking into account practical and technical experience. However, all kitchens operate differently and menus, covers, volumes and practices all vary. You should seek specialist advice on the suitability of product solutions, management and maintenance requirements for your specific operation. However, here are some common areas of risk for FOG – also known as drainage protection points.

Sinks

Sinks are used for many different jobs and have different FOG risk depending on their function. They include:

- Pot/pan wash (high risk)
- Food preparation sinks (low/medium risk)
- Beverage sinks – including those used for coffee and milkshake production (low/medium risk)
- Sterilising sinks (high risk)
- Pre-wash/dishwash tables (high risk)
- Mop drop sink

In larger kitchens, some of these sinks will only be used for food preparation and others solely for washing up or cleaning. Identifying the role of each sink is important and signage and training should be in place for staff.

Understanding how the sinks are plumbed is also vital. Follow the drainpipes to see if they exit the kitchen at the same point. This will be relevant when sizing the appropriate equipment for the site. The size of the sinks can also affect the sizing of these solutions, so capture the dimensions as part of a kitchen audit.

Warewashing and cleaning appliances

Dishwashers and utensil washers are commonly used in many commercial kitchens for cleaning and sanitising cutlery, crockery and cookware. Their operation means that dishwashers have the potential to allow FOG to enter the drain, so care must be taken to stop food waste and FOG entering the dishwasher in by scraping into a bin first. The main FOG risk factors are:

- Single tank machines (high/medium risk depending on kitchen food production)
- Multi tank – rack/flight machines (high risk)
- Glass wash machines (low risk)

The introduction of detergents (surfactants) and chemicals to warewashing and cleaning appliances or used for floor cleaning, together with the volume and temperature of the waste water, will affect the downstream grease separation process and can adversely impact the effectiveness of downstream FOG collection.

To achieve the same efficiencies, where surfactants are used, the wastewater retention time will need to be increased, i.e. increasing the sizing of the grease separation equipment. This should be taken into account when sizing and specifying the equipment to be installed.

Some other key areas that may require a risk assessment are:

- **De-carbonisers** – These are thermostatically controlled to maintain a consistent operating temperature at 64 degrees. Using a specially formulated, water-soluble cleaning detergent which is non-caustic, non-corrosive and non-hazardous, it breaks down grease and burnt-on carbon on pots, grill plates, grill bars, fryer baskets, baffle filters, and roasting trays. Any specialist advice should be sought from the manufacturer. For cleaning method statement see Appendix 8.
- **Floor gullies** – Wastewater from cleaning is often tipped down these. Because used cleaning water often contains FOG, these gulleys must be considered as part of a FOG management system. If staff are not properly trained, floor gulleys can also receive residue from bratt pans, boiling pans, kettles, etc. Trapping via a central separator and/or biological dosing treatment are possible solutions.
- **Ventilation systems** – Systems with integrated wash down system are normally found in larger kitchens, foodservice operations and fast food chains. Routine filter and ductwork washing will remove FOG within the wastewater discharge. Some systems include a grease trapping feature. If not, connection to effective FOG management equipment is recommended.
- **Cooking equipment** (see Appendix 5)
- **Rotisserie ovens** – These are used for prime cooking of mainly meat products and have a high risk potential for FOG production.
- **Pasta cookers** – These discharge wastewater with potentially high levels of starch. Starch can be a major factor in drain restrictions and blockages, depending on the volume of operations and discharge. Whilst internal grease traps are not generally effective, biological dosing systems installed downstream may provide a solution.
- **Combination steam ovens** – ‘Combi ovens’ are steam ovens used for cooking bread, baked goods, meats and vegetables. They are plumbed to the drainage network and can generate significant levels of FOG as a by-product of the cooking process. They may be high or medium risk based on the product being cooked. They have a high temperature discharge and these units should be connected to grease trapping equipment. As standard practice, solid trays should be used at the bottom of the units to prevent FOG entering the network. Some units have built-in FOG-capturing systems. Where the oven has a built-in cleaning function, use the recommended tablets and remove any visible FOG before running the appropriate cleaning cycle.
- **Deep fat fryers** – These vary in size depending on the type of food. Some premises will have small (almost domestic) sized fryers, while others will have large tank fryers. Used cooking oil from these units must be disposed of by registered contractors with documentation held on-site to support this. As there are no drainage connections, any FOG risk is associated with how the oil is managed, stored and collected.
- **Wok ranges/station** – A unit commonly used for fast, high-temperature cooking for oriental-style cuisine, which uses running water to cool the cooking top which in turn is connected to drainage. The wastewater is likely to contain high levels of FOG as a by-product of the cooking process. Wok ranges can use a lot of water, primarily to cool the extremely hot cooking surface. FOG is discharged, dependent on how the wok is cleaned. However, food or organic material can be contained in the discharge.
- **Bratt pans and tilt kettles** – Often used to prepare large volumes of cooking stocks, sauces, soups, sauce-based dishes and for shallow frying. These units pose a FOG risk as wastewater from cleaning is likely to contain significant levels of FOG. During cleaning, they are often emptied directly into floor drains and staff training is required to stop this happening. Some are also connected directly to drains.
- **Scoop rinse** – utensils and wares used in the production of dairy items, milk shakes, ice cream and chocolate products are likely to have food and fat residue adhering to them. They should therefore only be rinsed in sinks or devices connected to effective FOG management systems.

Food preparation

- **Potato peeler/rumbler** – These units are used to peel large volumes of potatoes and are usually either directly connected to a drain or drain-off valve. The waste from these units is likely to contain significant levels of starch and solid waste, particularly potato peelings. Use of a starch interceptor will assist with the capture of starch and debris.

Drinks

- **Coffee machine** – Used to produce coffee from coffee grounds. These units can produce significant levels of solid waste in the form of coffee grinds that should be collected separately for disposal to avoid them escaping into the waste water system. In addition, large volumes of dairy product or coffee residue can enter drains.
- **Milkshakes** – utensils and wares used in milkshake production can have a high fat residue. See ‘Scoop rinse’ above.

Waste food systems

- **Food waste disposal units** – These units are used to grind food waste and may be connected to dewatering units to reduce volume and produce a drier waste or to digesters or in-vessel composters as part of an on-site management process. Since regulations in both Scotland and Northern Ireland prohibit food waste being discharged to the sewer, food waste disposal units there should not be connected to the kitchen drainage pipework. See Appendix 6 slide 3 ‘Critical Path Installation Guide’ for effective food waste management practices.
- **Food waste digesters** – These use biological or enzyme-based additives to disintegrate food, allowing wastewater to exit the machine. The waste is likely to contain significant levels of FOG. The local water company should therefore be consulted about their application and use before fitting such equipment. NB: in Scotland it has been agreed by the relevant stakeholder organisations that food waste digesters do not meet the requirements of the Waste (Scotland) Regulations 2012 that states that food waste must be presented for collection and recycling.

After a full evaluation of a site’s expected FOG output, expert advice should be sought. The local Environmental Health Department can advise whether your proposed solution meets hygiene and food safety requirements for commercial kitchens. Kitchen equipment manufacturers, consultants and dealers will also be able to advise you. You may also wish to check whether the local water company supports the proposed actions that you will take to prevent potential problems in the drains.

The table included in Appendix 5 provides a list of kitchen and foodservice appliances, along with the level of risk and the suitability of different FOG management solutions.

Solution design

The BS EN 1825-2 standard provides extensive guidance for kitchen designers. This includes methodologies for assessing wastewater flow and likely FOG-related issues. While each site should be considered on an individual basis when planning a solution, some fundamental principles can be used as a starting point. The approach to designing an effective FOG management strategy is largely the same, irrespective of the location of the property. However, specific requirements may vary based on the type of property and whether the kitchen is new or existing.

Here are some considerations for the design of a successful FOG management solution for the following property types:

- **High street and residential areas** – If the drainage of the property or building directly enters a public sewer network, any specified trade effluent discharge or local environmental parameters should be considered when designing a FOG management solution.
- **Multi-tenanted property** – In some settings, multiple businesses use a shared drainage system owned by the landlord (e.g. shopping centres, transport hubs and office buildings) which then connects to the public sewer network. In this situation, a landlord or managing agent may specify particular FOG management requirements, including specifications or technical fit-out guides that a FOG management system must adhere to.
- **Existing kitchen** – Where FOG management is being introduced into an existing kitchen, a full site assessment should be carried out to ensure important factors (see ‘site assessment’) are considered.
- **New kitchens** – Where FOG management is being considered for a new kitchen or development, detailed plans including an itemised equipment schedule should be reviewed by the FOG management scheme designer. The kitchen designer should also be consulted throughout the process to ensure important factors (see ‘site assessment’) are considered in the design.
- **Commercial premises and offices** – In-house catering units and restaurants feature as an integral part of office buildings and commercial premises. Due to the nature of these buildings, multiple kitchens may be in use across several floors and rely on the same drainage and pumping stations, which may become blocked by the incorrect disposal of FOG. Suitable FOG management should be used to protect contamination points in all FSEs.

3.1.3 Solutions – Standards

BS EN 1825:2004 is the only European approved standard for grease management equipment in the UK

There is no UK-recognised standard for grease traps.

However, all FOG management equipment should be installed in line with BS EN 12056 for drainage systems inside buildings. Paragraph 5.3 of this standard requires that:

'drainage systems shall be designed and installed so that health and safety of the users and occupiers of the building is not affected, by amongst other things, the penetration of toxic or noxious odours (fetid air) into the building. Drainage pipework systems installed inside buildings shall not release vapours and foul air into the building.'

The BS EN 1825 standard for grease separators

This standard applies to separators for the separation of greases and oils of vegetable and animal origin from wastewater by means of gravity and without any external energy (see scope in BS EN 1825-1:2004).

Standards that relate to BS EN1825 Grease Separator:

- BS EN 1825-1:2004 – Principles of design, performance and testing, marking and quality control.
- BS EN 1825-2:2002 – Selection of nominal size, operation and maintenance.
- BS EN 1825 Grease Separators Applications

BS EN 1825 applies to Grease Separators with a Nominal Size (NS) > 1 (i.e. > 1 l/s flow rate). Separators that comply with this standard can be placed above or below ground and should bear an identification plate that states:

- Manufacturer name/identification mark/address
- Last two digits of the year the marking was affixed
- Reference to the British/European Standard
- Description of the product: generic name (e.g. grease separator), material and nominal size
- Information or regulated characteristics
- Load bearing capacity (for below ground separators)

All aspects of separator design, performance, installation and maintenance are covered by the harmonised Standard BS EN 1825. In future all equipment will need to carry the UKCA (UK Conformity Assessed) marking. At the time of publication of this Guide, Government guidance advised manufacturers could continue to use the CE marking and reversed epsilon marking on the GB market until 31 December 2024. For Northern-Ireland CE will still apply. The latest position can be found at: <https://www.gov.uk/guidance/using-the-ukca-marking>

Non BS EN 1825 grease traps

Many grease traps are available which are not designed or tested in accordance with the BS EN 1825 standard. These are often smaller in volume and use the same gravitational mechanism to remove FOG and food debris, albeit to a lesser extent.

As with any grease separator, waste collected by the system must be safely removed as part of the maintenance regime. As these products do not conform to the recognised BS EN standard, the manufacturer should provide the performance, selection, operation and maintenance requirements.

Please note: Guidelines, recommendations or case studies provided by suppliers are not the same as recognised standards. Scottish Water does not support the installation of any grease trap that does not meet the requirements of BS EN 1825.

3.1.4 BS EN 1825 Grease Separators

What it is

BS EN 1825 is the only European approved standard for grease management equipment in the UK. This standard applies to separators for the dividing of greases, oils, food waste and food debris from wastewater using gravity without any external power source (BS EN 1825-1: 2004).

Products that meet the requirements of BS EN 1825 are defined as 'Grease Separators'. Similarly functioning 'passive equipment' that does not meet the standard's requirements are defined as 'Grease Traps' - although the operating principles are the same.

When to use it

BS EN 1825 grease separators are the recommended option for new kitchens. The installation of these units should be considered during the design stage to ensure there is a dedicated drain and enough space for both installation and accessibility for maintenance. As a result of their size and for hygiene reasons, separators should be installed outside of the kitchen area or below ground.

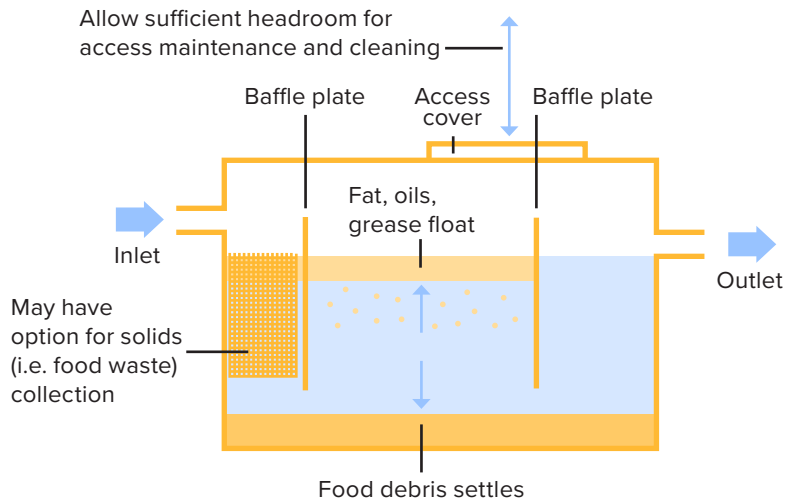
Key features:

- Suitable for indoor/outdoor use
- Do not require daily maintenance (less paperwork)
- Can be located underground
- Better suited to large equipment
- Large capacity can reduce maintenance requirement
- No electricity requirement

But:

- Large capacity can be unsuitable for smaller kitchens

Cross section of a typical grease separator



How it works

BS EN 1825 grease separators remove FOG, food waste and food debris from wastewater through a process using gravity, without any external energy. BS EN 1825 Grease Separators are sized to achieve a high separation efficiency. The longer wastewater remains in the separator, the more debris and FOG will separate.

How to install it

All wastewater pipes should be installed with a minimum 2% fall to prevent the accumulation of FOG. The inlet to the separator should have a calming section with a length of at least 10 times the nominal diameter (e.g. pipe diameter DN100 = calming section of 1,000mm). The transition from vertical to horizontal pipes should be made by using 2x 45° bends separated by a straight pipe with a length of ≥ 250 mm.

Pipelines to and from the separator should be adequately vented. If the nearest vent is further than 10m upstream of the separator, the supply pipe should be fitted with an additional vent pipe, terminating as close as possible to the separator (most separators have provision for direct connection to vent). Vent pipes should terminate to the roof and be removed from inlets to the building.

When supply pipes run through areas that are not frost-free, they need to be insulated and may additionally require trace heating. If the grease separator is lower than the flood level (usually street level), the effluent shall be discharged to the drainage system by using a wastewater pumping set.

BS EN 1825 separators that comply with this standard can be placed above or below ground:

- **Above ground grease separators** are often installed in an area outside of the kitchen. For this, the area needs to be frost-free and the space around and above the grease separator should be at least 0.5m to enable easy access for service, repair, and maintenance.

- **Below ground grease separators** are recommended to be installed on a flat and level base, following the manufacturer's instructions. The grade and thickness of the base should be designed to suit the conditions of the site. This is to ensure the grease separator itself is protected against external forces such as ground movement, high water tables and traffic loadings.

Great care should also be taken in deciding the location of the grease separators to ensure that access is achievable for service, repair, and maintenance. The position of the installation should also be selected to promote cooling and coagulation.

When installing a grease separator, please seek advice from competent person/s and follow the manufacturer's guidance.

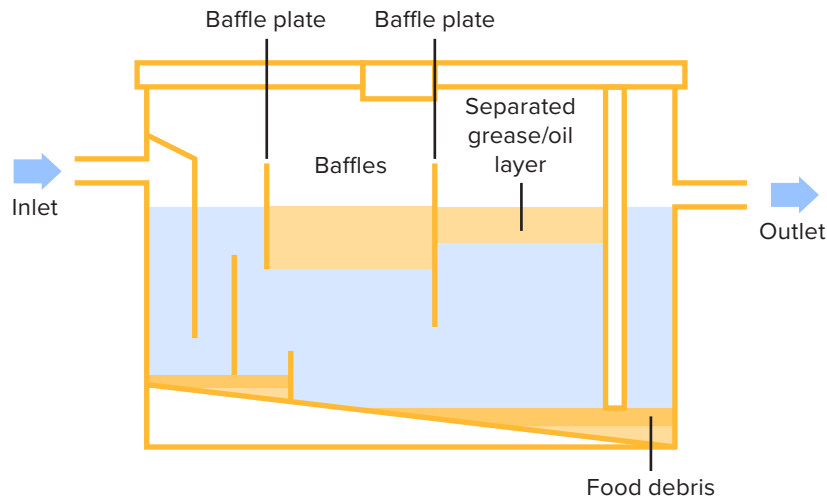
How to service and maintain it

The maintenance of BS EN 1825 grease separators is vital to their effectiveness. They should be inspected, emptied, and cleaned regularly. The frequency of inspection, emptying and cleaning should be determined according to the grease and sludge capacity of the separator and by operational experience. Emptying frequency and maintenance periods may vary between manufacturers and depending on the separator capacity. Specific guidance should be sought from the manufacturer and from competent person/s when organising a maintenance regime.

Unless otherwise specified, the separator should be emptied, cleaned, and refilled with clean water at least once a month – preferably, every two weeks. Where separators are fitted with grease level alarms, the alarms will determine when the equipment needs to be emptied.

There are different separators on the market whereby emptying, cleaning and refilling options range from being manual to fully automated. Automation can make maintenance easier, less time consuming and more rigorous.

Cross section of a typical grease trap



3.1.5 Grease Traps (non BS EN 1825)

What it is

Passive grease traps use gravity for the separation of FOG and food debris. They are interceptors that are incorporated into the drain run between a source of FOG and the main sewer. Passive grease traps are usually floor-standing and range in volume from 20–400 litres, although they can sometimes be larger.

They can be manufactured from mild steel, stainless steel, or various plastics. They may, or may not, also contain a filter basket for removing solids independently of their function to separate and retain FOG.

When to use it

Grease traps (passive devices that do not meet the requirements of BS EN 1825) are used to treat wastewater from single sources of FOG contaminated wastewater. For example, they can be used to manage the wastewater from sinks, wok ranges, combi ovens, etc.

They can be used where BS EN 1825 certified grease separators cannot be installed due to practical considerations (space, pipework fall, etc). Please note that Scottish Water does not support the installation of any grease trap that does not meet the requirements of BS EN 1825. Where this is not possible due to lack of space another suitable solution must be found. (See Appendix 6 – Critical Path Installation Guide)

Key features:

- Suitable for a single source of FOG
- No electricity requirement
- Different capacities available

But

- Requires daily maintenance

How it works

Grease traps work by separating and retaining (within the interceptor chamber) the FOG contaminants and food debris in wastewater. This allows the cleaner wastewater to pass through, which in turn protects the downstream sewer from blockages.

How to install it

All installations of passive grease traps should be in line with BS EN 12056 for drainage systems inside buildings. All pipework should have adequate fall, preferably 1:40. Adequate clearance should be provided around passive grease traps to ensure accessibility for maintenance and cleaning of not just the grease trap but the surrounding area also.

Food hygiene must be considered when locating these units because of their maintenance needs.

When installing a passive grease trap, please seek advice from competent person/s and follow the manufacturer's guidance.

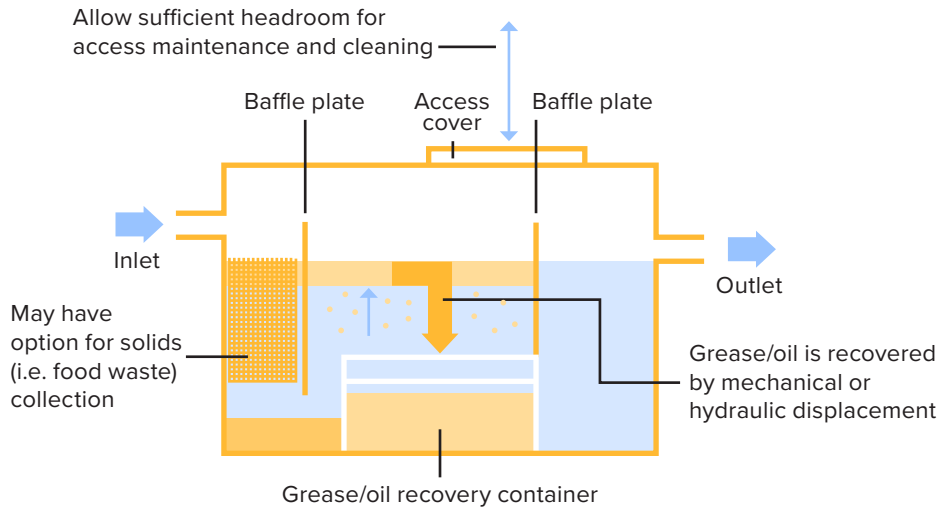
How to service and maintain it

As FOG is retained within the interceptor chamber a grease trap's capacity to separate and retain FOG is reduced over time if it is not correctly emptied. Therefore, a grease trap's ability to separate and retain FOG is governed by its maintenance regime.

A full-service maintenance regime must therefore be in place to avoid this reduced efficiency impacting the performance of the grease trap. This regime should include the removal of the entire contents (NB: this is controlled waste) and flushing through with clean water. This is a task for competent, trained persons.

In addition to full-service maintenance, some grease traps also require a few minutes of daily maintenance carried out by site staff to ensure the unit operates at full efficiency. Some units have filter baskets which remove some of the solids. These need to be emptied at least daily, sometimes more frequently based on use. The food debris removed from the trap should be disposed of in the same way as other kitchen food waste.

Cross section of a Grease Removal Unit (GRU)



3.1.6 Grease Removal Units (GRUs)

What it is

Grease Removal Units (GRU) are grease separators that have a mechanical means to remove the FOG from the wastewater into a separate container and/or disposal elsewhere

These stand-alone units require a power source and are usually sited in the kitchen or close to it and are connected to the kitchen's wastewater pipework. They usually have a smaller footprint than BS EN 1825 grease separators, as they do not hold as much FOG inside the unit. Their size makes them suitable for locations with limited space/access. However, it means they require more hands-on daily maintenance.

When to use it

GRUs are often used to protect one or more FOG contamination points at source, before connection to drainage lines. GRUs can be used to handle the outflow from kitchen equipment or appliances that have the potential to discharge large volumes of waste FOG into the drainage system. They cannot be used with biological dosing systems that are 'upstream' of them because this will affect the nature of the FOG in the wastewater and prevent it from being separated.

Key features:

- Smaller footprint (than grease separators)
- Staff can manage a lot of the daily maintenance
- Can be installed close to equipment
- Good for kitchens with multiple wash and discharge points.

But

- Daily paperwork and maintenance requirement
- Needs to be connected to electricity at all times

How it works

A GRU is a self-emptying grease trap. Installed at source directly 'downstream' on the equipment that they serve. These systems remove the FOG from the tank and have an automatic decant function to remove the FOG from the GRU into a separate container. The container can be removed to dispose of the collected FOG. Large food debris is removed by a strainer before the wastewater enters the main grease separator chamber

How to install it

GRUs are typically installed directly on the pipework at the source of FOG contamination, or in a plant room/basement for larger, industrial sized units. There should be adequate clearance around GRUs to ensure accessibility to the tank for daily maintenance and servicing. If internal GRUs are fitted under kitchen floors, then easy and clear access is essential.

Normally, installation should be carried out using 50mm diameter pipework. A good fall should be provided both entering and exiting the GRU, which should be positioned on a flat, level surface. Outlet pipework should be the same or greater diameter as the inlet pipework, with the number of 90-degree bends, kept to a minimum (ideally no more than 2). The outlet pipework should be installed in accordance with the Building Regulations.

Consideration will also need to be given to the electrical and mechanical requirements of some GRUs for installation purposes and also for the subsequent maintenance requirements. The manufacturer or installer will be able to advise. The GRU's electrical supply should be from a dedicated circuit and should have an overcurrent protection device in series with a residual current device (RCD) or Residual Current Circuit Breakers with Overcurrent Protection (RCBO).

Locating an internal GRU or standard grease trap system close to the high temperature waste discharge from catering equipment or sinks, and to water discharge laden with detergents will affect the separation of the FOG from the water and so reduce the ability of the system to trap and remove the FOG from the waste discharge. Dishwashers, warewashers, combinations ovens, and steamers are among the equipment types that may affect the operation of an internal GRU. In addition to location, the correct sizing of a GRU is very important to ensure its effective operation in dealing with wastewater volumes.

Where GRUs are installed, there also needs to be provision for safe, secure and hygienic storage of collected FOG and food solids. This must be away from the kitchen area to avoid cross contamination and in a location that will avoid potential infestation.

When installing GRUs, please seek advice from the manufacturer or a recognised grease contractor and follow the manufacturer's guidelines and plumbing standards.

How to service and maintain it

Due to the size of GRUs, they usually have limited space to store FOG and need to be emptied frequently. Depending on the quantity of FOG generated by the operation, GRUs may need to be emptied and cleaned daily. This can often be carried out by site staff to ensure that the unit is operating at full efficiency between planned maintenance visits.

The maintenance requirements for GRUs vary depending on the manufacturer and the circumstances in which they are installed. Generally though, maintenance will include emptying the collection container, cleaning the wiper blades or valve, and emptying the filter or strainer baskets.

If kitchen staff are responsible for emptying and cleaning a GRU, this will need to be included in kitchen manuals and working procedures, and appropriate training provided.

To ensure GRUs are operating at full efficiency, planned maintenance visits should also be carried out at least bi-annually.

Any consumable parts may need to be periodically replaced or upgraded.

3.1.7 Biological dosing systems

What it is

Biological dosing systems use safe, stable bacteria, microorganisms or enzymes designed to biologically and irreversibly break down the FOG in the drainage system.

Naturally occurring microorganisms are part of the make-up of the dosing materials, which can be supplied as fluid, solid or powder, depending on the system used.

The differing systems available comprise: wall-mounted, pumped and preactivated dosing.

When to use it

Dosing should be a secondary treatment measure supporting physical removal at the source of FOG.

Dosing is also an additional support option when paired with and used downstream of a Grease Separator (BS EN 1825),

Grease Trap (non BS EN 1825) or Grease Removal Unit (GRU). This provides treatment for any residual FOG that may enter the FSE's drains and sewers from the kitchen waste pipes.

Bacteria don't survive and enzymes do not work under some conditions. The kitchen wastewater should be analysed to check if biological dosing is suitable. Otherwise, biological dosing fluids could be pumped into the system but have no effect.

Dosing should be carried out when the kitchen is quiet, inactive or ideally closed so there is little or no flow into the waste water that it is managing.

Key features:

- Good for situations where other solutions are physically impossible to install
- Staff can manage a lot of the daily maintenance
- Can be installed close to equipment
- Can be used alongside and reduce maintenance requirements of grease separators.

But;

- Does not 'physically' intercept the FOG
- Allows FOG to enter the drain prior to any form of treatment
- Does not capture the FOG waste for reuse.
- May not be effective in some conditions, so consult supplier/manufacturer.
- Reliant on kitchen staff to maintain and ensure operating.

How it works

Biological dosing systems are connected directly to the kitchen's wastewater pipework and release bacteria into the drainage system to biologically break down, or biodegrade, FOG over time.

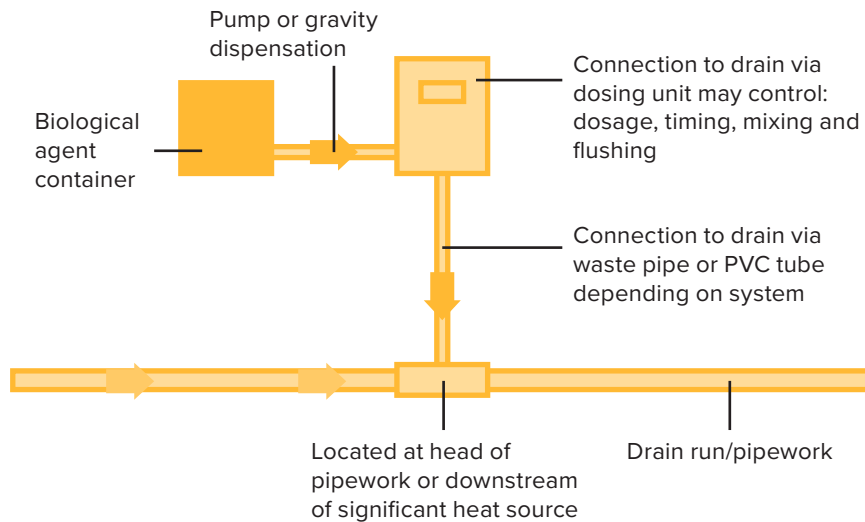
The microorganisms use organic matter, including FOG, to survive and reproduce. As the microorganisms use the FOG for energy and growth, the FOG is broken down irreversibly into simpler compounds and is then able to pass through drainage systems.

How to install it

Dosing systems should be connected directly to the kitchen's wastewater pipework.

Dosing points should be upstream of any grease traps and downstream of the contamination point, e.g. an appliance or sink. While the injection point should be as close as possible to the contamination point, heat can destroy the microorganisms, so the temperature of the waste discharge must be carefully considered. For the best results, dosing points should be selected in line with manufacturer's guidelines.

A biological dosing system



Most biological dosing systems are wall-mounted, and require sufficient space to locate the dosing pump and, depending on the system, the container of biological agent close to the point of injection. Other biological dosing systems are self-contained, and incorporate the biological agent within the system.

There are a number of factors that are known to affect the rate at which micro-organisms act on FOG. These include:

- The drainage network layout
- Temperature of the wastewater
- pH levels
- The amount of oxygen in the wastewater
- The natural level of micro-organisms in the wastewater
- Use of chemicals, surfactants, detergents and bleach
- How long the solution has 'contact time' to act on FOG

The effectiveness of any biological dosing system is also directly proportional to the make-up and bacteria types and population levels of the product. If the drains are shared, the impact of other users can also impact how successfully dosing manages FOG.

Systems and products should be able to demonstrate that they meet appropriate safety, quality and efficacy tests. In all cases specialist advice must be sought on the correct sizing and location of all FOG recovery devices to suit the wastewater discharge volumes, temperatures, types and locations.

Please note: Seek advice before dosing into secondary FOG management equipment from the manufacturer. Failure to do so may negatively impact the ability of FOG management equipment to prevent FOG waste entering the drainage line.

How to service and maintain it

Some biological dosing systems have to be regularly topped-up by hand, while others can be set up to automatically top-up at regular intervals or based on the volume of discharge from the kitchen.

A competent grease contractor or supplier should ensure that the biological dosing unit is correctly sited and be able to demonstrate efficacy of the dosing medium for the wastewater produced by the kitchen.

Otherwise, the kitchen manager will regularly have to ensure:

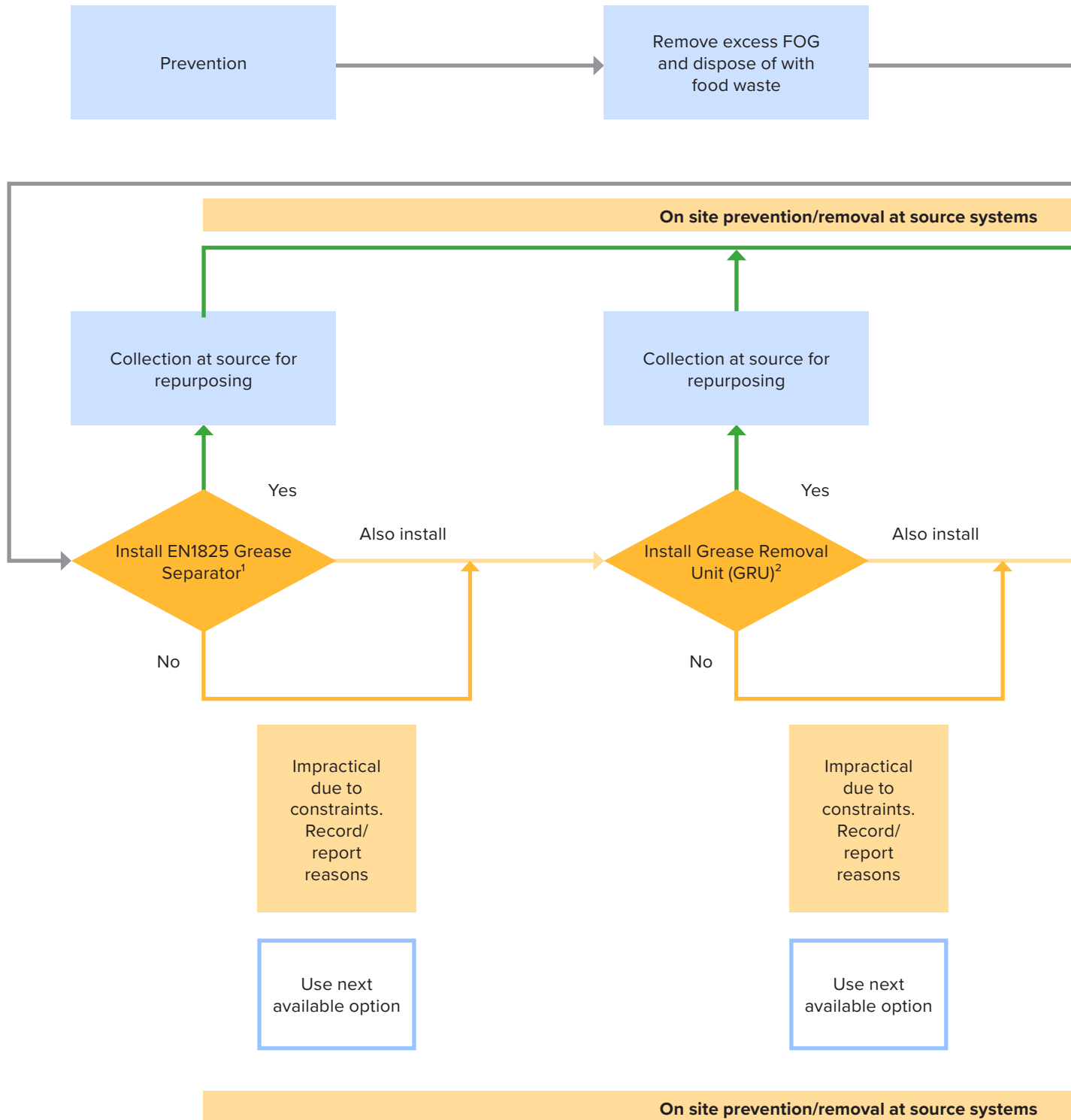
- the dosing pump is working
- the product dosing pipework remains unrestricted
- the product is dosed at the correct time of day to maximise the result
- product does not run out or pump batteries go flat
- product efficacy has been tested
- a sufficient amount of product is dosed into the drainage run that is connected to the FOG source, e.g., pot wash sink.

Systems will also require regular refill and testing by the supplier or their authorised service provider. Depending on the system, this is typically done monthly, quarterly or six monthly.

3.1.8. Using multiple solutions

Using more than one equipment system or several units of the same equipment will increase the potential to prevent FOG entering the kitchen drains and sewer. Such multiple solutions are more effective where physical removal is used as the first component. The suggested configurations are set out in the diagram below:

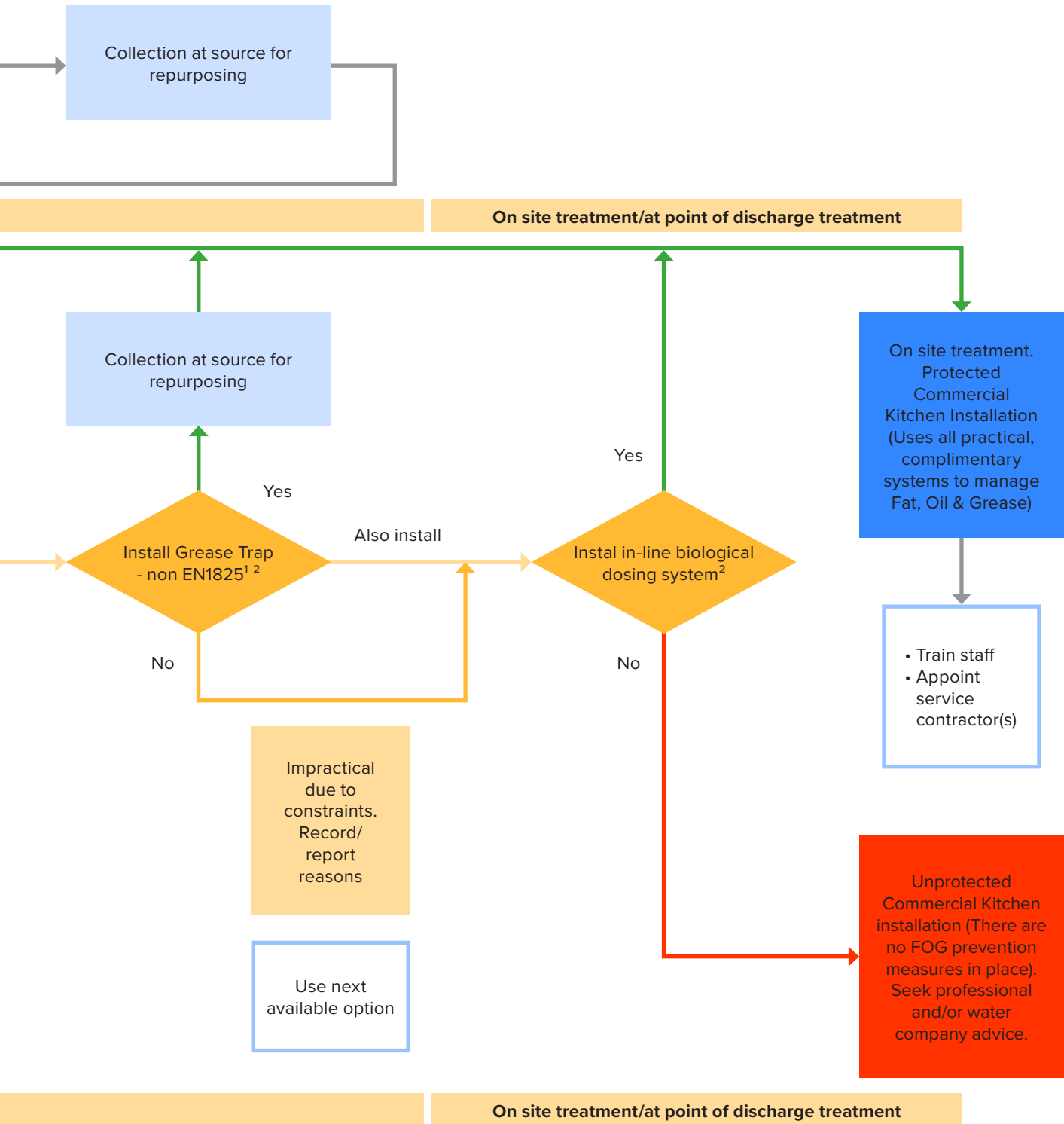
Hospitality Industry Fat, Oil & Grease Management - Critical Path Installation Guide



¹To meet flow rate requirements - refer to BS EN 1825 sizing requirements

²To meet the anticipated requirements of PAS 406 & PAS 409 when published (summer 2023)

- Consider combinations path (uses as many systems as practically possible).
- Optimum prevention path (uses all 4 available systems).
- Unprotected - no prevention or treatment systems in use.



Please note: The site assessment should be used to identify the configuration that best meets the needs of the site, as well as consulting the local water company and ensuring compliance with food safety legislation as advised by the appropriate Environmental Health Officer.

3.1.9 Solutions – Design sizing

To work effectively, any FOG management equipment has to be sized to match the nature and scale of your business. However, the size of the equipment also influences whether the solution is possible within the space available, whether it has to be located inside or outside the kitchen, and how closely it can be positioned to the contamination point. As a result, sizing solutions is crucial during the design phase.

BS EN 1825 grease separators

BS EN 1825-2:2002 provides guidance on sizing for grease separators. Most are placed outside the building due to size and for hygiene reasons when emptying them. However, there are BS EN 1825 separators available for above ground applications.

Non BS EN 1825 grease traps

Sizing for grease traps should follow the manufacturers instructions. The information given below is a general guide. For single bowl sinks, internal above ground grease traps should be sized to a minimum of 75% capacity of bowl volume. Where multiple sinks are connected to a grease trap, the capacity of that trap should not be smaller than two-thirds the total capacity of the combined sinks.

Sizing for connection to other items such as combi ovens, wok stations etc. should follow the same principles, ensuring the operational capacity is enough to manage the incoming effluent volume.

Where an accurate figure cannot be provided, an indicative figure should be used to reflect the maximum potential discharge over the course of a one-minute drainage period (at peak discharge).

In any case, additional operational volume should be considered to allow for increased FOG retention capability (suggested additional allowance 25%). Multiple FOG traps may be required to achieve the necessary capacity

Further details on sizing are given in Appendix 4.

Grease removal units

The calculations set out in Appendix 4 should be followed when sizing for a suitable grease removal unit. These sizing criteria are based on the US standard PDI-G 101¹ for GRUs and has been translated across to passive traps also. Note an additional 25% allowance has been included for added protection and to futureproof the kitchen in terms of its FOG management capability.

Depending on number of connections and other factors, either a 1 or 2-minute drainage period must be carefully selected. The actual drainage loading divided by the drainage period provides an indicative flowrate.

Sizing for connection to other items such as combi ovens, wok stations, etc., will follow the same principles, ensuring the grease removal unit has a sufficient operational flowrate to manage the incoming effluent. Where an accurate figure cannot be provided, an indicative figure should be used to reflect the maximum potential discharge over the course of one minute drainage period (at peak discharge).

Sizing for dishwashers, potwashers and washing machines must be carefully considered – a separate grease removal unit is recommended for each connection.

To determine the discharge rate, the dishwashers, potwashers or washing machines' tank capacity must be determined as specified by the manufacturer of this equipment. No operational loading should be applied, and the drainage period must not exceed one minute to allow for pumped, high temperature discharge to be effectively treated.

All Grease Removal Units must have an automated FOG removal function.

Further details on sizing are given in Appendix 4.

Biological Dosing and dosing volumes.

As best practice, guidance on correct dosing levels should be sought from the manufacturer as product performance will vary depending on application.

Kitchen staff should be responsible for ensuring adequate volumes of dosing liquid are maintained.

3.1.10 Decommissioning and recommissioning equipment

If a kitchen is closing for two weeks or more, or a FOG management system is being removed or replaced, the equipment must be decommissioned properly to prevent risks while it is out of action.

Before any decommissioned or 'out of use' systems are used again there must be a similar recommissioning process to ensure the systems will work effectively.

Decommissioning

A grease separator or GRU must be drained, emptied of trapped waste and properly cleaned. Otherwise, the following risks can happen while the system is unused:

- **Caking** – Waste can solidify in the system and restrict the flowrate into, through or out of the system
- **Back flooding** – Wastewater can be prevented from passing through the system and draining efficiently
- **Blocked valves** – Debris caught in valves can stop FOG waste from being decanted from the system.
- **Smoke and fire risk** – If the heating elements are covered with FOG waste, heat from the element can cause them to smoke. This can trigger fire alarms and, in severe cases, the deposit could ignite and cause a fire.
- **Infestation** – Fly, larvae or maggot infestations can occur and odours could attract pests such as rodents.

To prevent these problems, the system should be fully serviced and the inlet and outlet pipework must be cleared of any build-up before it is decommissioned. The system should then be filled with fresh, clean water. Your maintenance contractor should provide this service.

¹There is no UK standard for GRUs. However, the US standard is globally widely accepted.

Any decommissioned equipment should be isolated from mains power.

Where the system is being removed and/or replaced, any waste material held within the system should still be safely collected and disposed of.

If your kitchen is closing, biological dosing can continue. A new container of fluid can be fitted when the kitchen re-opens.

Recommissioning

Before restarting your FOG management equipment, it must be re-cleaned according to the manufacturer or installer's instructions.

If a FOG management system has not been used for 14 days or more, and not been properly decommissioned, a specialist contractor should complete a full commissioning review to make sure the system will work effectively when brought back into service. If the commissioning review is successful, a certificate or service report should be provided and kept for future reference.

Where the system has been left idle without being properly decommissioned, a full service will be required before the system can be used again.

If your kitchen has been out of use, the drains could have dried up, causing waste to stick to the pipes and form blocks. Flush your drains with water and check your sink gullies for blocks that could have formed.

3.2 Kitchen best practice and maintenance

All kitchen staff should be instructed about the importance of keeping FOG and food waste out of drains and sewers. They should be fully aware of the company policy on FOG and how to dispose of waste in general.

Print and display the poster provided as Appendix 9 to give staff visual prompts how to stop FOG entering drains.

Preparing to wash-up

All plates, pots, trays and utensils should be scraped and dry-wiped with disposable kitchen towel or with a suitable utensil before they are put in the sink or dishwasher. The scrapings should be put in the food waste bin. All sinks should have a strainer over the plughole to prevent food waste going down the drain. Waste caught in the strainer should be transferred to the food waste bin.

Maintaining FOG management equipment

A FOG management system is only as effective as the service it receives. Grease separators need emptying, grease removal units require regular maintenance and biological dosing systems have to be frequently topped-up and serviced. An unmaintained grease separator or grease removal unit is a health hazard, especially in a catering and food preparation area. Grease trap contents are regarded as hazardous waste and must only be collected and disposed of by a licensed contractor.

While some simple 'housekeeping' tasks can be done by trained kitchen operators, maintaining FOG systems can be unpleasant, technical and carry a high level of legal responsibility. This is why outsourcing this task to specialist certified contractors is often the best way to make sure essential maintenance is correctly and routinely carried out. However, some important day-to-day practices can still be carried out by staff to minimise the amount of FOG that enters drainage systems. (These practices are normally set out in the manufacturer's equipment guidance/instructions for use.)

Personal protective equipment

Because the waste collected in grease traps is hazardous, personal protective equipment should be worn when carrying out any cleaning or maintenance work. As a minimum, disposable gloves, eye goggles and a protective mask should be worn.

Control of Substances Hazardous to Health (COSHH) data sheets should also be consulted before using any substances to clean or maintain equipment.

Disposal of food waste and FOG

Kitchen procedures should clearly set out the process for dealing with food waste and cooking oil, which should, ideally, be safely stored away from the kitchen in sealed containers, for specialist collection. Waste FOG must never be tipped down sinks or drains. It should be stored and collected securely.

In accordance with the relevant *Environmental Protection Acts*, you should ensure your waste contractor is a licensed waste carrier and your waste is being taken to a licensed waste management site. (See also Section 4 – What to do with the FOG you collect.)

You should also receive a copy of the waste transfer note for each load of waste that leaves your premises. Corresponding sections of the waste transfer note should also be kept by the persons or company removing the waste from the premises. The Waste Transfer Note should include the waste carrier certificate. These should be kept for two years and you may be asked to make them available for inspection.

Reports and documents

Several records and documents can be maintained to demonstrate best practice is being followed and confirm whether contractors are fulfilling their contractual duties correctly. These include:

- Staff training records (in line with data protection and General Data Protection Regulation (GDPR) guidelines)
- In-house maintenance records
- Records of all planned contractor maintenance and any repair or call-out work
- Waste transfer notes for each load of waste that leaves the premises

These records and documents can be provided as evidence of the status of your FOG management system to landlords, water companies, insurance companies and environmental health officers.

Where a service contractor is employed for maintenance, their report should confirm to the owner/operator that: a) best practice has been followed; and b) contract requirements have been met. The specific details of what the contractor should include in the report following their maintenance procedure are set out at Appendix 7.

Storing oil

Oil must be stored in accordance with the relevant oil storage regulations applicable for each nation (see Appendix 2 – Legislation).

Oil shall be stored in a container which is of sufficient strength and structural integrity to ensure that it is unlikely to burst or leak in its ordinary use.

The container should be kept within a secondary containments system to prevent oil flooding the kitchen and/or entering drains should the primary container burst or leak.

It is advisable to have a 'oil spill plan' in place to cover any accidental spills or leakage of oils. This plan should include training for all staff to ensure understanding that oil spills should not be disposed of down drains and sewers.

3.3 Training solutions

Staff training should include instruction on the importance of keeping FOG and food waste out of drains and sewers. All personnel should have adequate training for the function that they are required to undertake. Staff training should take into account that for many kitchen operators English may not be their first language.

Each member of staff must be told that failure to do this can lead to expensive costs for the business to unblock drains and clean up the area. Bad practice can result in a public health nuisance, prosecution and unwanted negative publicity as well as disruption to normal business.

Records of in-house training received by all staff – whether full-time, part-time or zero hour contracted – should be maintained by the employer and all aspects of training undertaken should be detailed.





4. What to do with the FOG and used cooking oil you collect

Knowing how to correctly store and dispose of waste FOG and used cooking oil (UCO) is important to meeting your legal requirements and keeping your staff and customers safe.

When discharged to the sewers, FOG causes costly problems. But if collected and processed, it can be reused as a source of energy. In this way, the FOG you collect can play a role in the circular economy.

Storing UCO and FOG

Used cooking oil and FOG from sources such as deep fat fryers, woks, frying pans and baking trays should be put in air-tight containers to prevent odours and infestation by pests and insects. The containers should be stored in a secure area, clear of all drains, to prevent spills and leakages.

Collection or disposal of FOG

In the past, food outlets were often paid for their used cooking oil, which could then be used as a high energy diet for livestock. However, due to a change in legislation, this is no longer allowed, and the oil has to be collected commercially for disposal or recycling. The market for UCO is relatively established and often suppliers of new oil will collect used cooking oil free of charge for recycling.

FSEs have various options when disposing of FOG as set out below:

- Visit the relevant environment agency's public register for waste operators (upper tier) and use the postcode search to find those operating in your area.
- Your local authority may also be able to give advice about commercial waste operator collection options or you can try searching for specialist brown grease collection operators on the internet.
- A list of waste management companies can also be found on the Environmental Services Association website: www.esauk.org/about-us/members-directory.
- Please note, you must ensure your waste contractor is a licensed waste carrier and that they give you a copy of the waste transfer note. You should also check that the waste is being taken to a licensed waste management site. Waste transfer notes should be kept for two years and made available for inspection under the relevant *Environmental Protection Act*.
- Bag up your grease trap waste and take it to a collection facility.
- Contact an anaerobic digestion (biogas) facility to see if it might want your FOG and food waste. A map can be found on www.biogas-info.co.uk/resources/biogas-map/. However, you may have to do some investigation to find the contact details for nearby operators.



FOG and UCO as fuel

FOG and UCO can be used to produce biodiesel, an environmentally-friendly transport fuel. The decarbonisation of transport is a terrific challenge and renewable fuels can play a much larger role than they currently do in the transition to net zero.

Biodiesel is blended into fossil diesel at volumes of up to 7% for filling station forecourts and sold as the fuel B7. It can also be used at higher blend levels (20%, 30% and even 100%) by commercial vehicles. Biodiesel made from wastes such as UCO and FOG has a carbon footprint around 90% lower than conventional diesel.

The government supports recycling of UCO and FOG as it avoids landfill and reduces the use of fossil fuels for energy generation, helping to avoid greenhouse gas emissions.

The value of FOG

FOG is a valuable feedstock to biodiesel producers and they are always keen to secure more of it. At present, relatively little grease trap/GRU waste is collected in the UK, and most of the FOG used to make biodiesel is imported from the USA. As more restaurants install grease management systems and more FOG is collected, its value will grow as it will become more economical to collect.

FOG in power generation

As well as a fuel source, FOG can also be co-digested with food waste in biogas plants. The gas produced – biomethane - can then be used to produce electricity.

A recent study¹ showed that FOG collected at source, i.e. at FSEs, is 'cleaner' and has a higher energy content than FOG that has to be removed from sewers or at wastewater treatment works. That study also suggested that in the catchment studied around 94,000 tonnes of FOG could be recovered at source, of which around 84% was produced by FSEs. The researchers assessed that this volume of FOG could generate up to 222GWh of electricity per year.

The Government has demanding targets for reducing carbon emissions. Whilst the phasing out of the internal combustion engine over time will mean less liquid transport fuel will be needed for vehicles, FOG will always be a valuable resource as it is also required to decarbonise those sectors that cannot ultimately be electrified, such as heavy freight, aviation and marine.

The future of FOG

All FSEs have a responsibility to have grease management systems, yet many have yet to install them. At present the overall volumes of FOG collected in FSEs is small, and the infrastructure for collecting it and delivering it to renewable fuel production facilities is underdeveloped. This will change as more FSEs begin to play their role in the bioeconomy, and as volumes grow this resource will become more valuable to the renewable fuel industry. Other technologies for recycling FOG and UCO will also develop over time.

¹'Characterisation and energy assessment of fats, oils and greases (FOG) waste at catchment level.' Thomas Collins, Rachel Cunningham, Bruce Jefferson, and Raffaella Villa Waste Management Vol 103 Feb 2020



5. Conclusion

In the absence of any definitive legislation governing the management of FOG, this document sets out some essential principles that can be followed by any foodservice establishment to ensure they effectively manage the FOG they produce.

By helping you develop an understanding of the causes of FOG, your site evaluation, the equipment systems and processes, the need for staff training and the ongoing maintenance procedures, we hope many of the uncertainties have been removed. This clarity of requirement is intended to give confidence to site managers and owners to take direct responsibility for FOG management in their kitchens.

Preventing FOG entering the sewer has a moral, ethical and business value in protecting foodservice operators from the potential damage FOG can cause, the potential loss of business and the risk of prosecution from water companies. Proper FOG management not only contributes to protecting the environment from unnecessary pollution, but can also support the bioeconomy by capturing and making best use of FOG as a valuable resource for renewable fuel production.

Please spread this message to colleagues and businesses, so that the foodservice sector as a whole can work in collaboration to manage this important business and environmental issue. Longer term it will help us all ensure we leave the planet in a better condition for future generations.

If you have any suggestions for future revisions to this publication, please contact any of the supporting organisations (listed in Appendix 1).

6. Glossary

BD	Biological dosing
BS EN	British adoption of a European (EN) standard
CE	Conformité Européene
CSO	Combined Sewer Overflow
CoSHH	Control of Substances Hazardous to Health
FOG	Fat, Oil and Grease
FSE	Foodservice Establishments
GRU	Grease Removal Unit
OEM	Original equipment manufacturer
PPE	Personal protective equipment
PT	Passive trap
QSR	Quick service restaurant
RCBO	Residual Current Circuit Breakers with Overcurrent Protection
RCD	Residual Current Device
UCO	Used cooking oil'
UKCA	UK Conformity Assessed
WaSC	Water and Sewerage Company (referred to as 'water company' in this document)

Appendix

Appendix 1 – FOGwise Review Group and Key Contributors

The FOGwise Review Group who developed and produced this guide consisted of the following organisations:

- British Water
- Foodservice Equipment Association (FEA)
- National Federation of Fish Fryers (NFFF)
- Policy Consulting Network
- Southern Water
- Ventilate Grease Control

In addition, thanks go to the other organisations who have collaborated and freely contributed their knowledge, expertise and experience to the creation of this document. Key contributors are listed below.

- Foodservice Consultant Society International UK and Ireland (FCSI UK&I)
- Grease Contractors Association - Draft Code of Practice
- Quintex - Commercial Docs.
- Renewable Transport Fuel Association - Environmental Compliance and Services
- Severn Trent - Water UK FOG Best Practice Guide
- Swift Comply - Training Manuals

Appendix 2 – Legislation from the four UK Nations

Legislation	England	Scotland	Wales	N. Ireland
Water Industry Act 1991	✓		✓	
Environmental Protection Act 1990	✓	✓	✓	
The Building Regulations 2010	✓		✓	
Building Act 1984	✓		✓	
Food Safety Act 1990	✓	✓	✓	
Animal By-Products Regulations	✓	✓	✓	✓
Food Safety and Hygiene (England) Regulations 2013	✓			
The Control of Pollution (Oil Storage) (England) Regulations 2001	✓			
Sewerage (Scotland) Act 1968		✓		
The Building (Scotland) Regulations 2004		✓		
The Food Hygiene (Scotland) Amendment Regulations 2014		✓		
Water Resources (Scotland) Act 2013. Part 6 – Sewage Network		✓		
Waste (Scotland) Regulations 2012 (WSR)		✓		
Waste Duty of Care Code of Practice	✓		✓	
The Food Hygiene (Wales) Regulations 2006			✓	
The Water and Sewerage Services (Northern Ireland) Order 2006				✓
Pollution Control and Local Government (Northern Ireland) Order 1978				✓
Food Hygiene Regulations (Northern Ireland) 2006				✓
Waste and Contaminated Land (Northern Ireland) Order 1997				✓
Building Regulations 2012				✓

Extracts:

Water Industry Act 1991



111 Restrictions on use of public sewers.

(1)...no person shall throw, empty or turn, or suffer or permit to be thrown or emptied or to pass, into any public sewer, or into any drain or sewer communicating with a public sewer—

(a) any matter likely to injure the sewer or drain, to interfere with the free flow of its contents or to affect prejudicially the treatment and disposal of its contents

Explanation (ref Water UK): It is a criminal offence under section 111 of the *Water Industry Act 1991* to discharge into the public sewers any matter which may interfere with the free flow of wastewater. In addition, where the water company has incurred costs in dealing with the detrimental effects on the sewers e.g. removing blockages cleaning sewers, investigating and remedying flooding or pollution incidents, it can take legal action to recover these costs. Prosecution can result in substantial fines or even imprisonment.

Environmental Protection Act 1990



The EPA 1990 covers England, Scotland and Wales and states: "It is illegal to treat, keep or dispose of controlled waste in a manner likely to cause pollution of the environment or harm to human health. It is an obligation to safely manage, store and legally dispose of any waste product that is produced." The Act imposes a duty of care on businesses with respect to their commercial waste in terms of making sure a licensed contractor removes their waste oil and they obtain waste transfer notes.

The *Environmental Protection Act 1990* also gives local authority Environmental Health departments powers to impose restrictions or to shut down a business in response to 'statutory nuisance', such as smells, effluents and the accumulation of refuse.

The Building Regulations 2010 Drainage and waste disposal (2015 edition)



H1 Foul Water Drainage, Section 2 2.21

Drainage serving kitchens in commercial hot food premises should be fitted with a grease separator complying with BS EN1825-1 and designed in accordance with BS EN1825-2 or other effective means of grease removal.

Building Act 1984



Section 59 of the *Building Act 1984* enables a local authority to require satisfactory provision for drainage of an existing building by service of a notice on the owner. This can require the owner of the building to make satisfactory provision for the drainage of the building, or, as the case may be, require either the owner or the occupier of the building to do such work as may be necessary for renewing, repairing or cleansing the existing cesspool, sewer, drain, pipe, spout, sink or other appliance, or for filling up, removing or otherwise rendering innocuous the disused cesspool, sewer or drain.

Food Safety Act 1990



Under the *Food Safety Act 1990*, local authorities are authorised to inspect catering premises. Any problems stemming from the effects of FOG on drains, resulting in a failure to comply with the Food Hygiene Regulations which may result in prosecution or an emergency prohibition order preventing trading.

Standalone grease traps can be a serious source of potential contamination that can effectively become internal septic tanks, which result in problems with odours and infestation of vermin and insects. It's imperative that FOG systems do not compromise hygiene & safety in the foodservice operation.

Animal By-Products Regulations



Animal By Products Regulation (EC) No 1069/2009 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 21 October 2009 laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing Regulation (EC) No 1774/2002 (Animal by-products Regulation)

This stipulates the responsibilities placed on each member state.

From 1 November 2004 waste cooking oil from catering premises can no longer be used as an ingredient in animal feed. This is to safeguard the food chain. The collection of waste cooking oil must be via a licensed waste carrier. From October 2007 liquid waste may not be disposed of at landfill.

ENGLAND: *The Animal By-Products (Enforcement) (England) Regulations 2013* SCOTLAND: *The Animal By-Products (Enforcement) (Scotland) Regulations 2011*

WALES: *The Animal By-Products (Enforcement) (Wales) Regulations 2014*

N. IRELAND: *The Animal By-Products (Enforcement) Regulations (Northern Ireland) 2015*

Food Safety and Hygiene (England) Regulations 2013



Regulations 2013 and European Regulation (EC) no.852/2004 set out general hygiene rules that apply to all registered and approved food businesses including structural requirements and the implementation of procedures based on hazard analysis and critical control point (HACCP) principles.

The regulation sets out objectives for “good hygiene practices” to protect food safety and consumers. This includes ensuring that grease is not allowed to build up and that premises and equipment are cleaned regularly to remove grease and dirt.

The Control of Pollution (Oil Storage) (England) Regulations 2001



Failure to comply with any of the requirements of regulations 3 to 5 or a notice under regulation 7 is a criminal offence (see regulation 9), punishable on conviction on indictment to an unlimited fine or on summary conviction to a fine not exceeding the statutory maximum (currently £5,000).

Sewerage (Scotland) Act 1968



46A Offence as to fat, oil or grease
A person commits an offence if the person passes, or permits to be passed, any relevant substance from trade premises into a public sewer, or a drain connecting with such a sewer and the substance – alone or in combination with any matter – interferes with, or is likely to interfere with, the free flow of the contents of the sewer, or adversely affects, or is likely so to affect, the treatment or disposal of the contents of the sewer.

The Building (Scotland) Regulations 2004



3. 7 Wastewater drainage

Every wastewater drainage system serving a building must be designed and constructed in such a way as to ensure the removal of wastewater from the building without threatening the health and safety of the people in and around the building, and that facilities for the separation and removal of oil, fat, grease and volatile substances from the system are provided.

Traditional, standalone grease traps can allow fetid air and malodours into the kitchen area, which can pose a risk to health and safety in contravention of *The Building (Scotland) Regulations 2004*. It's imperative that design and installation of FOG systems do not compromise hygiene & safety in the foodservice operation.

Building Standards technical handbook 2019: non-domestic buildings

The Building Standards technical handbooks provide guidance on achieving the standards set in the *Building (Scotland) Regulations 2004*.

3.7.8 Discharges into a drainage system

Where a discharge into a drainage system contains oil, fat, grease or volatile substances, for example from a commercial kitchen, there should be facilities for the separation and removal of such substances.

Separator systems are used in a wide variety of situations to fulfil a number of different requirements.

It is important to establish why a separator system is needed and what specific function it is expected to fulfil before selecting the appropriate size and type of installation.

Separators should be constructed and installed in accordance with:

- a. *BS EN 858-2: 2003* for light liquids such as mineral oil or petrol
- b. *BS EN 1825-2: 2002* for fat, vegetable oil or grease.
The use of emulsifiers to break up any oil or grease in the drain is not recommended as they can cause problems further down the system.

The Food Hygiene (Scotland) Amendment Regulations 2014



To support *European Regulation (EC) 852/2004*, which sets out general hygiene rules that apply to all registered and approved food businesses including structural requirements and the implementation of procedures based on hazard analysis and critical control point (HACCP) principles. [summarized by British water FOG Code of Practice <https://www.britishwater.co.uk/article/fog-20.aspx>]. The Code of Practice sets out objectives for “good hygiene practices” to protect food safety and consumers.

Water Resources (Scotland) Act 2013. Part 6 – Sewage Network



Section 35 – Substances generally

60.This section inserts a new section 46A into the 1968 Act which creates a new offence of passing, or permitting to be passed, fat, oil or grease into a public sewer or connected drain where it is liable to interfere with the free flow of the sewer's contents or adversely affect the treatment or disposal of its contents. The offence only applies to the passing of such matter from trade premises (defined by section 59(1) of the 1968 Act as any premises used or intended to be used for carrying on any trade or industry). It does not apply in circumstances where Scottish Water has given its consent for the substance to be passed into the sewerage network under Part II of the 1968 Act.

61. The section also inserts a new section 46B into the 1968 Act, which allows Scottish Water to recover the cost of investigating or remedying any resulting damage to or blockage of the sewer or drain, or interference with the free flow of the sewer's contents, from the owner or occupier responsible, unless Scottish Water has given its consent to the discharge under Part II of the 1968 Act.

in Scotland the discharge of FOG to the public sewer has been specifically prohibited, other than when it is controlled by a trade effluent consent, by an amendment to Section 46 of *The Sewerage (Scotland) Act 1967 (SSA)* (see attachment). This amendment also formalises Scottish Water's right to recover costs for the maintenance and repair of our sewers associated with any breach of this legislation. The SSA also gives Scottish Water the power to decide which effluent discharges it will control using trade effluent legislation.

Waste(Scotland) Regulations 2012 (WSR)



Since the implementation of the *Waste (Scotland) Regulations 2012 (WSR)*, it has been mandatory for all FSE, in an urban setting, who produce >5kg per week of food waste, to present this for collection. This has led some to seek an alternative disposal route such as, on-site digesters and de-watering units. The legislative stakeholders, Scottish Water, Zero Waste Scotland and SEPA, came together and agreed a position which states that, food digestion units do not comply with the regulations as the waste is not "presented for collection" and that where a de-watering unit is installed the volume of waste remaining must be maximised. There has been discussions on whether the effluent from food waste de-watering units should be consented however, as we are unaware of any units having been installed, these discussions have never come to any firm conclusion. FSEs in rural locations are exempt from complying with WSR however they are still subject to S46 of the SSA.

Waste Duty of Care Code of Practice



The Code of Practice applies to you if you produce, carry, keep, dispose of, treat, import or have control of waste in England or Wales. The law requires anyone dealing with waste to keep it safe, make sure it's dealt with responsibly and only given to businesses authorised to take it. If you're authorised or registered in Scotland or Northern Ireland but you store, transport or transfer waste in England or Wales, you should also take account of this code. This code is issued under section 34 of the *Environmental Protection Act 1990*.

3.1. Waste holders: waste duty of care requirements
It is illegal to deposit controlled waste except under and in accordance with an environmental permit or a registered waste exemption. It is also illegal to treat, keep or dispose of controlled waste in a way that is likely to cause pollution of the environment or harm to human health.

The Food Hygiene (Wales) Regulations 2006



To support *European Regulation (EC) 852/2004*, which sets out general hygiene rules that apply to all registered and approved food businesses including structural requirements and the implementation of procedures based on hazard analysis and critical control point (HACCP) principles. Summarized by British Water FOG Code of Practice <https://www.britishwater.co.uk/article/fog-20.aspx>. The Code of Practice sets out objectives for "good hygiene practices" to protect food safety and consumers.

The Water and Sewerage Services (Northern Ireland) Order 2006



It is an offence to throw, empty or turn, or suffer or permit to be thrown or emptied or to pass, into any public sewer, or into any drain or sewer communicating with a public sewer [or into a sustainable drainage system] or into any wastewater treatment work any matter likely to injure the sewer, drain system or works; interfere with the free flow of its contents; affect prejudicially the treatment and disposal of its contents.

Pollution Control and Local Government (Northern Ireland) Order 1978



Article 65 of the *Pollution Control and Local Government (Northern Ireland) Order 1978* contains provision for defective premises. These provisions are applicable where it appears to the local authority that premises are in such a state as to be prejudicial to health or a nuisance and where there would be unreasonable delay if the provisions of the *Public Health (Ireland) Act 1878* were to be used. The provisions allow the local authority to abate the nuisance and recharge their costs.

Food Hygiene Regulations (Northern Ireland) 2006



Local authorities are authorised to inspect premises under the *Food Hygiene Regulations (Northern Ireland) 2006*. Problems arising from the effect of fat, oil and grease on drains, resulting in a failure to comply with the Food Hygiene Regulations, could result in prosecution or an emergency prohibition order preventing trading from the premises.

The *EU Food Hygiene Regulations, (EC) 852/2004* on the hygiene of foodstuffs and *(EC) 853/2004* laying down specific hygiene rules for food of animal origin, are implemented in Northern Ireland by *The Food Hygiene Regulations (Northern Ireland) 2006* (as amended).

**Waste and Contaminated Land (Northern Ireland)
Order 1997**



The legislation refers to disposal of waste and governs the disposal of fats, oils and grease which are to be collected in a suitable container and disposed of by a licensed waster contractor.

Building Regulations 2012



23. Fitness of materials and workmanship

In any relevant work the materials used shall be of a suitable nature and quality in relation to the purposes for and the conditions in which they are used; be adequately mixed and prepared; be applied, used or fixed so as adequately to perform the functions for which they are designed; and not continue to emit any harmful substance longer than is reasonable in the circumstances; and the standards of materials and workmanship need be no more than are necessary to secure the health, safety, welfare and convenience of persons in or about the building; and further the conservation of fuel and power.

79. Drainage systems

Every building shall be provided with such sanitary pipework, underground foul drainage and rainwater drainage as may be necessary for the hygienic and adequate disposal of foul water and rainwater from that building.

81. Underground foul drainage

Underground foul drainage shall consist of pipes and fittings of such size, layout, construction and water tightness; and with sufficient ventilation, to ensure the hygienic conveyance of foul water to a sewer, cesspool, septic tank or similar structure; and have such means of access as is necessary to facilitate the clearance of blockages.

Grease traps must be maintained and emptied regularly based on needs by an appropriately qualified contractor.

Appendix 3 – Table of solutions – maintenance best practice

Maintenance matrix

	EN1825 grease separator	Passive grease trap	Automated grease removal/recovery unit	Dosing unit
In-house maintenance				
Pre-scape (plates/pans)	Each occurrence	Each occurrence	Each occurrence	Each occurrence
Remove and skim top layer*		Daily		
Inspect for obvious faults/issues		Daily	Daily	Daily
Remove/empty FOG container			Daily	
Remove/empty 'solids' container/filter		Daily	Daily	
Replenish fluid and purge lines				Monthly
Maintain external cleanliness		Daily	Daily	Daily
Complete in-house FOG log		Each occurrence	Each occurrence	Each occurrence
Contractor/specialist maintenance				
Deep clean (empty/clean tank)	Monthly	Quarterly	Quarterly	
Electrical and mechanical service			Quarterly	
Replenish fluid and purge lines				Monthly
Waste disposal				
Dispose of FOG waste responsibly	Each occurrence	Each occurrence	Each occurrence	

*Subject to kitchen personnel having the appropriate training and correct PPE. The skimmed waste should be stored and collected by a licensed waste carrier for transfer to a licensed waste site or for recycling. See section 3.2 'Kitchen best practice and maintenance' for more information.

Appendix 4 – Solution sizing

Sizing for grease traps

	Details/action	Calculation
Determine overall capacity/volume	Double bowl sink (sink bowl dimensions – h x w x d)	2 x 600x450x300mm = 162 litres
Apply operational loading reduction	-25% (x 0.75)	162 Litres x 0.75 (operational loading reduction) = 121.5 litres
Additional capacity allowance (suggested +25%)	+25% (x1.25)	121.5 x 1.25 = 152
	Output	152 litre capacity

Source: ASME standard A112.14.3 'Table 2 Procedure for sizing grease interceptors'.

Sizing for grease removal units

	Details/action	Calculation
Determine overall capacity/volume	Double bowl sink (sink bowl dimensions – h x w x d)	2 x 600x450x300mm = 162 litres
Apply operational loading reduction	-25% (x 0.75)	162 litres x 0.75 (operational loading reduction) = 121.5 litres
Select drainage period	2-Minute Drainage Period (÷ 2)	121.5 Litres ÷ 2 minutes = 60.75 Litres Per Minute
Convert To Litres Per Second	Litres Per Second (÷ 60)	60.75 Litres ÷ 60 (Seconds) = 1.02 (L/ps)
Additional Capacity Allowance (Suggested +25%)	+25% (x1.25)	1.02 x 1.25 = 1.28
	Output	1.28 Litres per second

Source: PDI-G101 'Table 8.3.2. Procedure for sizing grease interceptors'.

Note 1 on table: As best practice, for singular connection points, e.g. single-bowl sink a one minute drain-rate should be assumed.

Note 2 on table: As a guiding principle, where pumps are in use before a FOG trap (e.g. dishwasher or sump pump) a one minute drain rate should be used.

Appendix 5 – FOG management solution matrix

Kitchen/ foodservice appliance	Application	FOG risk/ propensity to produce FOG waste water Normal Operations. *1 - see footnote.	FOG management solutions	
			Grease separator BS EN 1825 External/Underground. All Kitchen drainage connected	Passive Trap (PT) Internal - Close proximity to Appliance

Sinks

	Pot/pan wash	High	Lead / most suitable FOG appliance / system solution, based on suitability and sizing.	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.
	Sterilising sinks	High	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Product not necessarily suitable. Seek OEM guidance.
	Preparation sinks	Low/medium	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.
	Pre wash/dishwash table	High	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.
	Beverage sinks	Low/medium	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.

FOG management solutions			Commentary/Reference
Grease Removal Unit (GRU)	Biological Dosing (BD)	Organic Waste screening	
Internal - Close proximity to Appliance	Internal - Close proximity to Appliance. Downstream	Waste Filter prior to FOG appliance/drain connection	

Links

Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.	Essential	Trapping / Retention is preferred. BD may be used as management solution if not possible to site internal FOG Traps in proximity to appliances.
Product not necessarily suitable. Seek OEM guidance.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.		Pot Sinks, with high temperature sterilising bowl integrated - Schools, Healthcare, MoD. Not suitable for discharging into PT or GRU, due to temperature. Seek OEM guidance. Centralised below ground / external Separator most suitable combined with BD to provide supplementary drain management.
Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.	Review operation to determine necessity.	Dependent on Kitchen Operation/s. Review required. Meat / Fish / Patisserie areas may contribute FOG discharge and suitable Solutions need including.
Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.	Essential	Trapping / Retention is preferred. BD may be used as management solution if not possible to site internal FOG Traps in proximity to appliances.
Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.	Essential	Dependent on Operation/s. Review required. Dairy and other compounds as may contribute FOG discharge, and suitable Solutions need including. Ensure protection provided to Drains to prevent ingress of Grounds.

Appendix 5 – FOG management solution matrix (continued)

Kitchen/ foodservice appliance	Application	FOG risk/ propensity to produce FOG waste water Normal Operations. *1 - see footnote.	F	
			Grease separator BS EN 1825 External/Underground. All Kitchen drainage connected	Passive Trap (PT) Internal - Close proximity to Appliance

Warew

Dishwash / Potwash Machines. *Single Tank machines	Dish & Pot / Pan Washing	High	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.
		Medium	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.
*Multi Tank - Rack / Flight Machines		High	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Product not necessarily suitable. Seek OEM guidance.
*Glass Wash Machines	Glass	Low	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.
De-Carbonisers	Cleaning Cooking Grids, Utensils, Brander Plates, etc	Specialist Review	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.

FOG management solutions			Commentary/Reference
Grease Removal Unit (GRU)	Biological Dosing (BD)	Organic Waste screening	
Internal - Close proximity to Appliance	Internal - Close proximity to Appliance. Downstream	Waste Filter prior to FOG appliance/drain connection	

Washing

Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.	Filters integral to appliances	Dishwash and Pot Machines are designed to PreWash, Wash and Rinse Utensils, Crockery, Cutlery and small wares. Through general use FOG will be included in the discharge, especially during any emptying cycle. Trapping / Retention subject to GRU / PT OEM Manufactures guidance. BD is suitable. Care should be taken with assessment of the use of surfactants / chemicals and water temperature discharge, if considering PT GRUs.
Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.	Filters integral to appliances	Trapping / Retention subject to OEM Manufactures guidance. BD is suitable.
Product not necessarily suitable. Seek OEM guidance.	Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.	Filters integral to appliances	High volume discharge of Waste Water. External trapping recommended. Supplementary BD optional for internal drain management.
Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Filters integral to appliances	Low risk, generally. BD may be most suitable if required.
Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.	Essential	Dependent on Operation/s. Review required. Dairy and other compounds as may contribute FOG discharge, and suitable Solutions need including. Ensure protection provided to Drains to prevent ingress of Grounds.

Appendix 5 – FOG management solution matrix (continued)

Kitchen/ foodservice appliance	Application	FOG risk/ propensity to produce FOG waste water Normal Operations. *1 - see footnote.	FOG management solution	
			Grease separator BS EN 1825 External/Underground. All Kitchen drainage connected	Passive Trap (PT) Internal - Close proximity to Appliance

Cooking Equipment

Combination Ovens. Ovens on Stands	Steam / High temperature discharge to drain.	High	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.
		Low	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	
Full Height Combination Ovens (20 / 40 Grid) - drain point at low level		High	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Product not necessarily suitable. Seek OEM guidance.
		Low	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Product not necessarily suitable. Seek OEM guidance.

FOG management solutions			Commentary/Reference
Grease Removal Unit (GRU)	Biological Dosing (BD)	Organic Waste screening	
Internal - Close proximity to Appliance	Internal - Close proximity to Appliance. Downstream	Waste Filter prior to FOG appliance/drain connection	

Equipment

Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.		Trapping / Retention subject to PT / GRU OEM Manufactures guidance. Discharge temperature may make local PT / GRU's unsuitable. If Ovens have the option of intergrated FOG capture systems, these can be included, as supplementary to external systems. BD is a solution. Care should be taken with assessment of Automated Cleaning cycles and use of chemicals, if considering PT GRUs.
	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.		Where ovens are used for regeneration / rethermalisation, or non Prime cooking, FOG discharges will be minimal.
Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.		Trapping / Retention subject to OEM Manufactures guidance. Discharge temperature may make local PT / GRU's unsuitable. Low level drain points may require Pumps for FOG appliances. If Ovens have the option of intergrated FOG capture systems, these can be included, as supplementary to external systems. Care should be taken with assessment of Automated Cleaning cycles and use of chemicals, if considering PT GRUs.
	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.		Where ovens are used for regeneration / rethermalisation, or non Prime cooking, FOG discharges will be minimal

Appendix 5 – FOG management solution matrix (continued)

Kitchen/ foodservice appliance	Application	FOG risk/ propensity to produce FOG waste water Normal Operations. *1 - see footnote.	FOG management solution	
			Grease separator BS EN 1825 External/Underground. All Kitchen drainage connected	Passive Trap (PT) Internal - Close proximity to Appliance

Cooking Equipment

Rotisserie Ovens	Prime cooking of mainly Meat products.	High	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.
Boiling Pans, Bratt Pans	Production of Sauce based dishes, stocks, sauces, soups, shallow frying, etc	Med / High	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Product not necessarily suitable. Seek OEM guidance.
WOK ranges.	Fast high temperature cooking process. Water used to cool cooking top.	High	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Product not necessarily suitable. Seek OEM guidance.
Pasta Cookers	Pasta	*Starch	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Product not necessarily suitable. Seek OEM guidance.
Deep Fat Fryers.	Frying.			

FOG management solutions			Commentary/Reference
Grease Removal Unit (GRU)	Biological Dosing (BD)	Organic Waste screening	
Internal - Close proximity to Appliance	Internal - Close proximity to Appliance. Downstream	Waste Filter prior to FOG appliance/drain connection	

ment (continued)

Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation.	Optional suitable FOG Appliance / System solution, based on suitability and sizing, on-site situation / operation. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.		Trapping / Retention subject to OEM Manufactures guidance. Discharge temperature may make local PT / GRU's unsuitable. If Ovens have the option of intergrated FOG capture systems, these can be included, as supplementary to external systems.
Product not necessarily suitable. Seek OEM guidance.	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.		FOG Risk can be high, subject to operations. Most units discharge waste residue to Floor Gulleys / Drains. Some have direct drain connections for wash down purposes. Connection to above ground appliances not possible. If no External / Below Ground Separator is installed, then BD remains the most suitable inline drain solution - downstream.
Product not necessarily suitable. Seek OEM guidance.	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.		WOK ranges can use a high volume of water, but this is used primarily to cool the extremely hot cooking surface. Little by way of FOG is discharged, dependent on Wok cleaning process', albeit food / organic material can be contained in discharge.
	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.		Pasta Cookers will by their nature discharge waste water with potentially high levels of Starch. Starch can be a major issue in Drain restrictions and blockages - dependent on volume of operations and discharge. Internal Grease Traps are not generally suitable. BD installed down stream should provide an effective solution.
			No Drainage connections. Risk is in the control of Oil recovery for collection.

Appendix 5 – FOG management solution matrix (continued)

Kitchen/ foodservice appliance	Application	FOG risk/ propensity to produce FOG waste water Normal Operations. *1 - see footnote.	FOG management solution	
			Grease separator BS EN 1825 External/Underground. All Kitchen drainage connected	Passive Trap (PT) Internal - Close proximity to Appliance

Preparation

Potato / Vegetable peelers.	Mechanical peeling of Potatoes and Vegetables.	*Starch	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	
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Waste Food

Macerators, Waste Dewaterers, BioDigesters	Food Waste Systems	High	'Normal Operations' – All Kitchens operate differently ! This guidance is provided on the basis of an 'average' Foodservice operation – a 'Generalisation' based on known practical and technical experience. Menus, Covers, Operational styles, Volumes can all vary. It is recommended to seek specialist advice on suitability of Product Solutions, management and maintenance requirements. Product not necessarily suitable. Seek OEM guidance.	Product not necessarily suitable. Seek OEM guidance.
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FOG management solutions			Commentary/Reference
Grease Removal Unit (GRU)	Biological Dosing (BD)	Organic Waste screening	
Internal - Close proximity to Appliance	Internal - Close proximity to Appliance. Downstream	Waste Filter prior to FOG appliance/drain connection	

ration

	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.. Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.	Filters essential - integral / external	Potato Peelers will by their nature discharge waste water with potentially high levels of Starch. Starch can be a major issue in Drain restrictions and blockages - dependent on volume of operations and discharge. Internal Grease Traps are not generally suitable. BD installed down stream should provide an effective solution.
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d Systems

Product not necessarily suitable. Seek OEM guidance.	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.		Waste Water from these units, should generally not be connected to any grease trapping system. Seek guidance from supplier / OEM to minimise any FOG discharge to sewer.
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Appendix 5 – FOG management solution matrix (continued)

Kitchen/ foodservice appliance	Application	FOG risk/ propensity to produce FOG waste water Normal Operations. *1 - see footnote.	F	
			Grease separator BS EN 1825 External/Underground. All Kitchen drainage connected	Passive Trap (PT) Internal - Close proximity to Appliance

Ventilation

With integrated Wash Down systems connected to drains.	Ventilation	High	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Product not necessarily suitable. Seek OEM guidance.
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Floor

Floor Drains, Floor Gulleys.		Low / Med / High	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.	Product not necessarily suitable. Seek OEM guidance.
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FOG management solutions			Commentary/Reference
Grease Removal Unit (GRU)	Biological Dosing (BD)	Organic Waste screening	
Internal - Close proximity to Appliance	Internal - Close proximity to Appliance. Downstream	Waste Filter prior to FOG appliance/drain connection	

in Systems

Product not necessarily suitable. Seek OEM guidance.	Support FOG Appliance / System, used in conjunction with Lead system, to promote higher levels of efficacy.		Ventilation Systems with Integrated Wash Down systems, are normally found in larger Kitchen / food service operations, although some QSR Chains may also operate them. Routine Filter and Ductwork washing, will remove FOG within the waste water discharge. Some systems design in a Grease Trapping system, as an integral feature. If this does not exist then connection to a below ground / external Separator is recommended. BD can be used as a support product for drain management.
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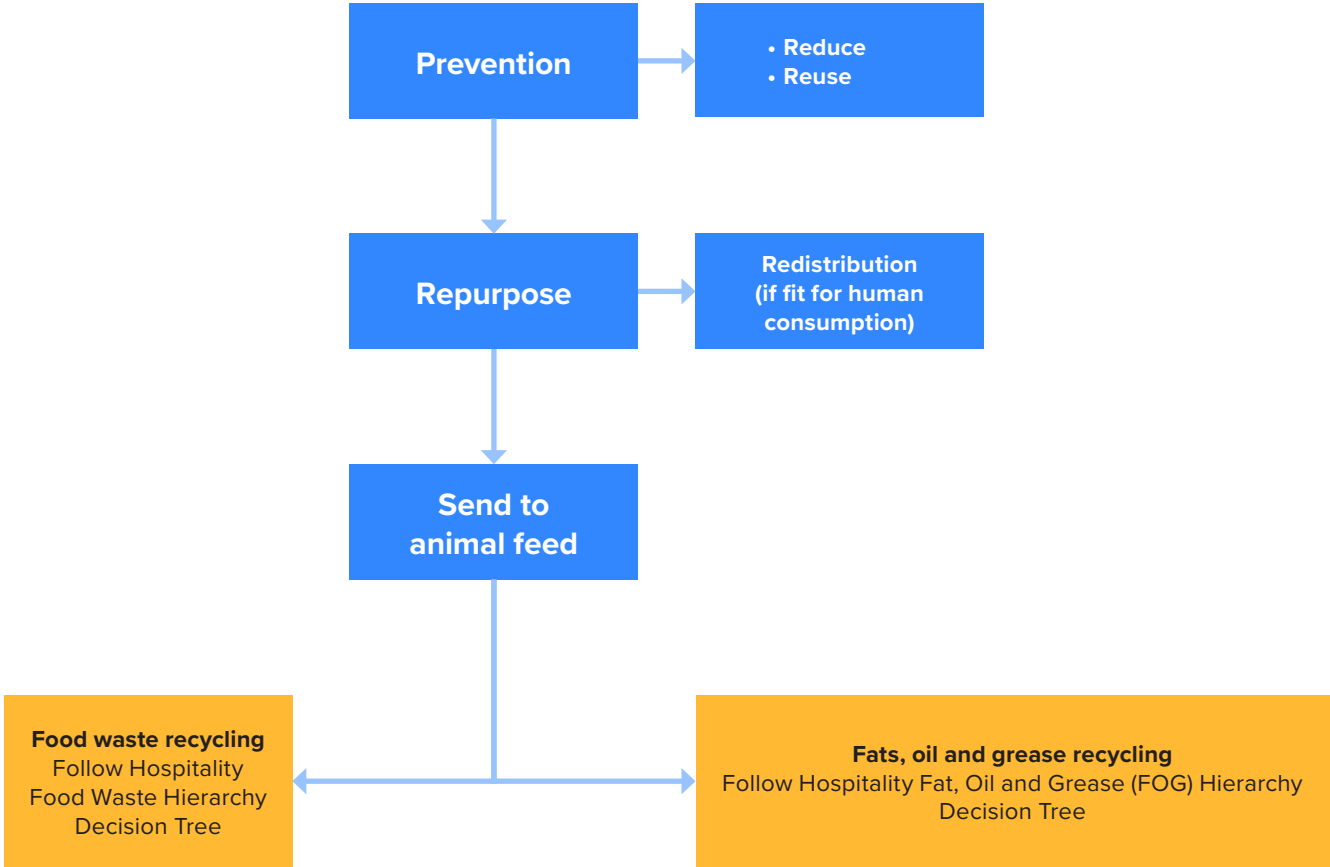
Drains

Product not necessarily suitable. Seek OEM guidance.	Lead / Most suitable FOG Appliance / System solution, based on suitability and sizing.		Wastewater and Cleaning water are often drained into floor drains and gulleys. The wastewater will certainly contain various levels of FOG, dependent on the type and size of operation. Trapping via a central separator and / or managing through liquid or solid BD treatment is a solution.
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Reference:

*1- 'Normal Operations' – All Kitchens operate differently! This guidance is provided on the basis of an 'average' Foodservice operation – a 'Generalisation' based on known practical and technical experience. Menus, Covers, Operational styles, Volumes can all vary. It is recommended to seek specialist advice on suitability of Product Solutions, management and maintenance requirements.

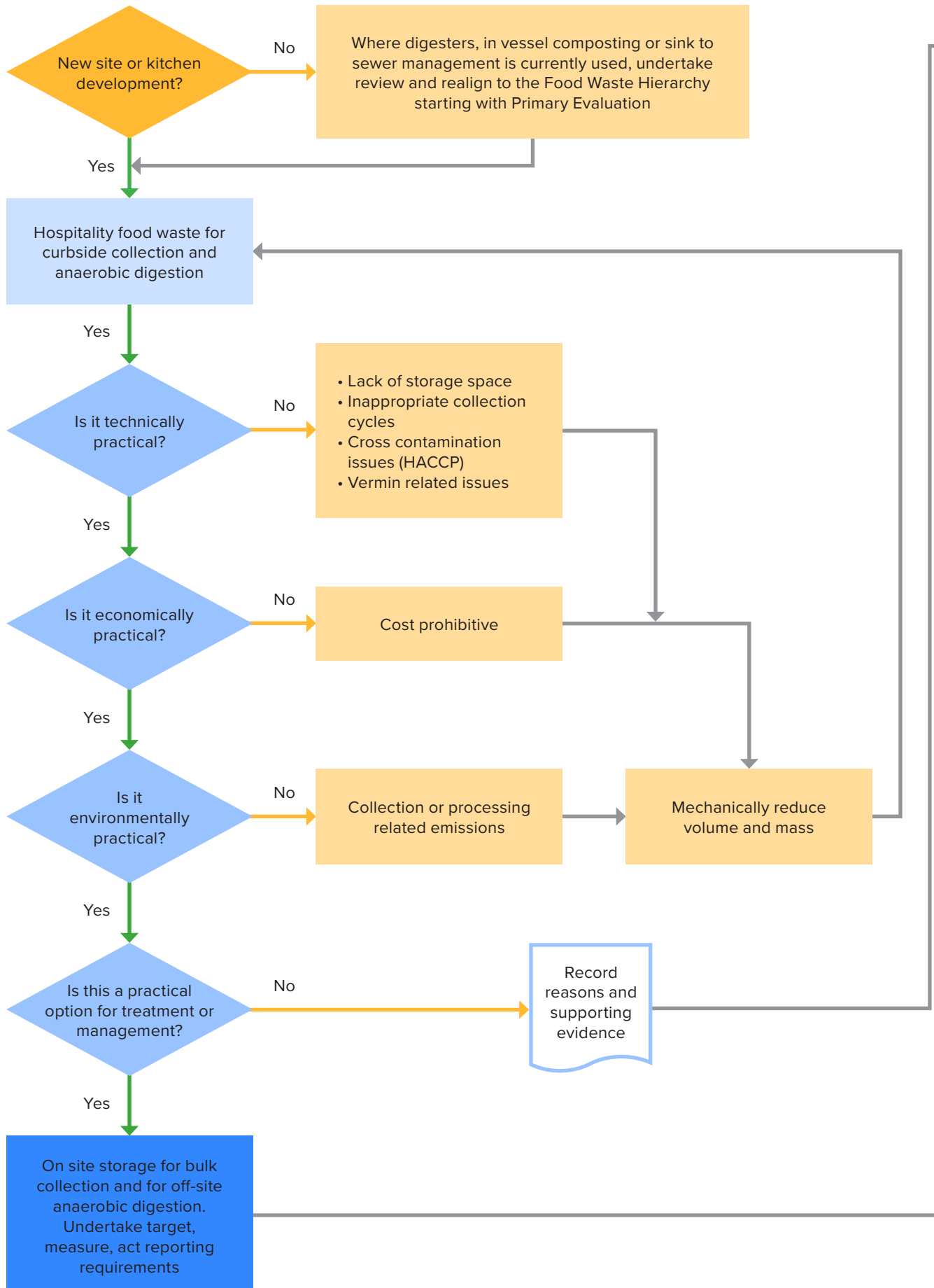
Appendix 6 - Hospitality Industry Food Waste & Fat, Oil and Grease (FOG) Hierarchy – Decision Tree





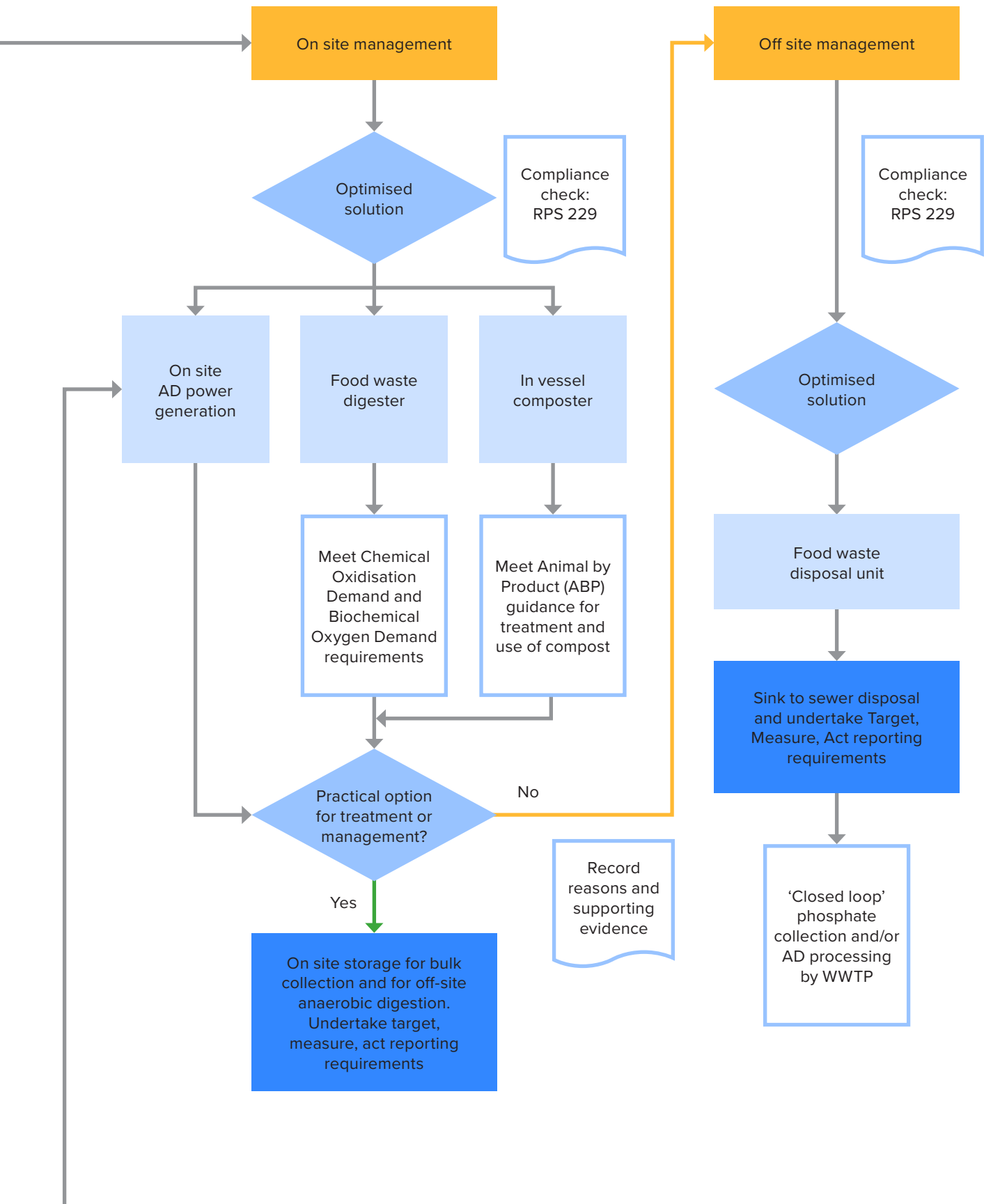
Hospitality Industry Food Waste Hierarchy - Decision Tree

Primary evaluation

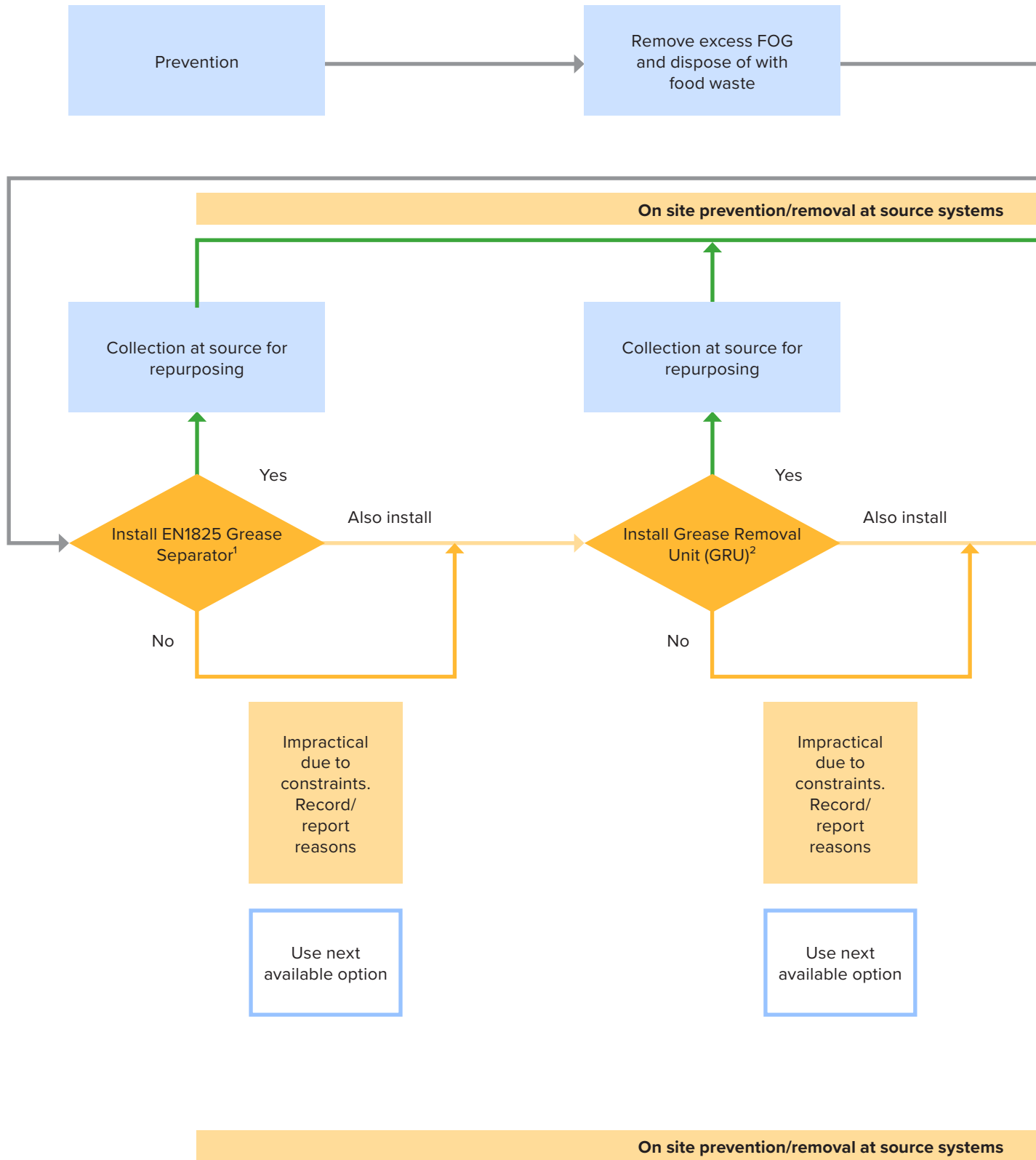


Secondary evaluation

Tertiary evaluation



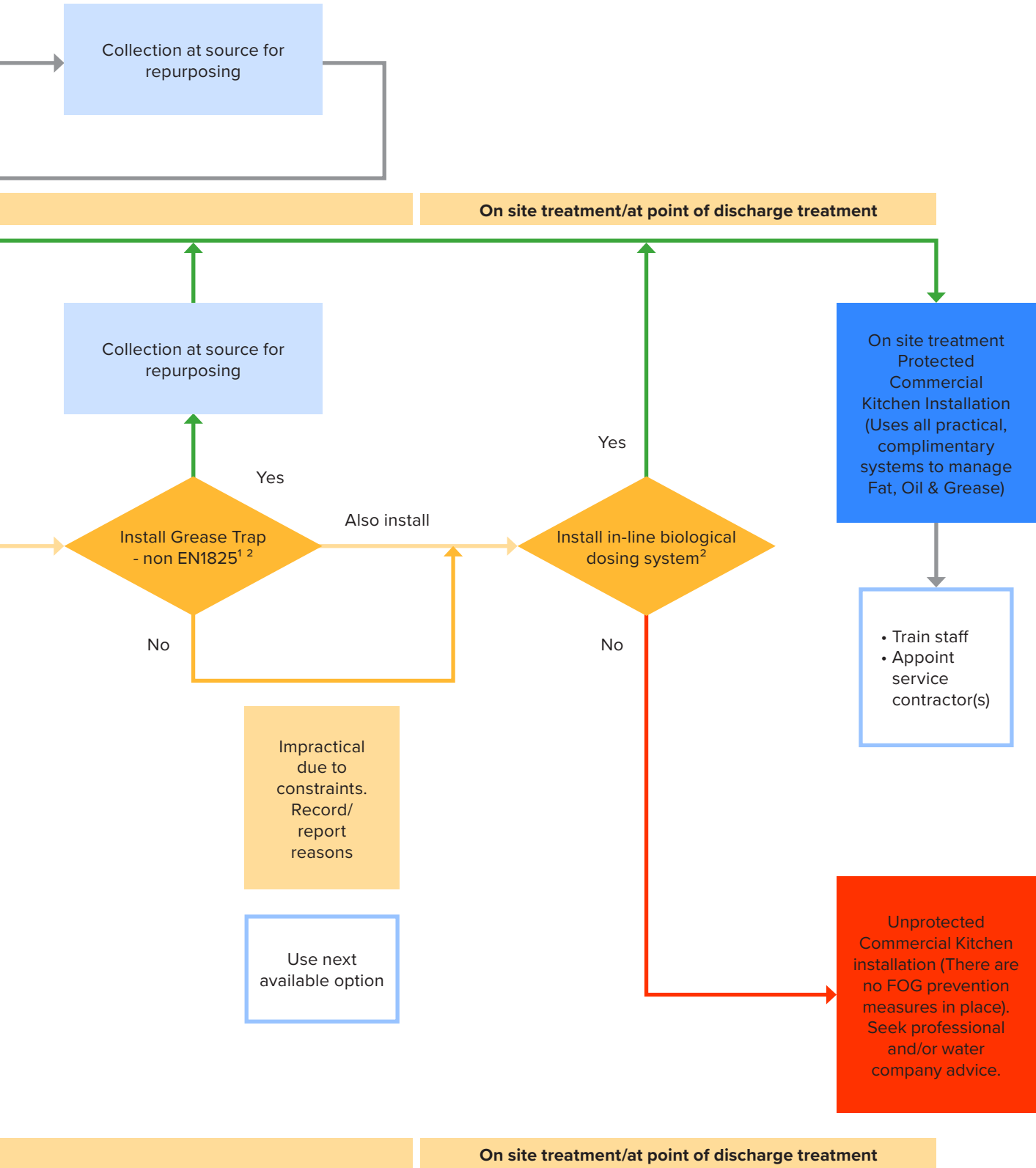
Hospitality Industry Fat, Oil & Grease Management - Critical Path Installation Guide



¹To meet flow rate requirements - refer to BS EN 1825 sizing requirements

²To meet the anticipated requirements of PAS 406 & PAS 409 when published (summer 2023)

- Consider combinations path (uses as many systems as practically possible).
- Optimum prevention path (uses all 4 available systems).
- Unprotected - no prevention or treatment systems in use.



Appendix 7 – Guidance on reporting and documentation from a FSE maintenance contractor

Reporting and documentation

The 'Contractor' shall maintain documentation and records that fall under the requirements of this guide. The purpose of these records is to demonstrate that:

1. Best practice procedures have been followed
2. Contract requirements have been met

Reporting

Pre and post-condition report to include:

- Name of contractor and service personnel
- Date, time, location
- Assessment on condition and current performance of equipment (satisfactory, advisory, urgent)
- Before and after photographic evidence (date/time stamped)
- Any areas of FOG management system not serviced and reason
- Improvements and recommendations
- Date of next service
- Evidence responsible disposal of waste removed during service
- Contractor sign-off
- FSE signature acknowledgement
- Issue 'certification of completion' including overall assessment

Appendix 8 – Decarboniser method statement

Method

1. Arrive on site and report to your contact. Wear Hi-Viz, safety boots and appropriate PPE.
2. Complete any permits required and familiarise yourself with any visitor H&S awareness policies.
3. Complete risk assessment of working area ensuring adequate access, lighting and room to complete the work safely. Check there are no slip/trip hazards, excess fumes or noise, or potential falling objects in the area. Also check that the electrical plug sockets are free from damage and the equipment is safe to work on.
4. Take any precautions required to ensure your own and others safety. (i.e. use barriers or warning signs). If any safety issues cannot be adequately addressed do not start work and contact Head Office.
5. Inspect machine to ensure it has not been tampered with or used inappropriately.
6. Establish the site drain to be used, ensuring it links to a foul water sewer and to the safest and most practical water point.
7. First switch off the machine and remove all surface FOG using the FOG absorbent pads. Ensuring you wear safety gauntlets and goggles. Dispose of the pads into the site general/non-food waste bins.
8. Before connecting your waste hose to the Decarboniser place the filter in front of the waste tap and ensure it covers it fully, now connect the waste hose and locate the end of it into the foul drain.
9. Next connect a clean water hose pipe(cold) and dilute the waste as you drain.
10. Once the tank is drained down close off the outlet pipe to the foul drain.
11. Remove the filter and then scoop out any residual organic matter found in the base of the Decarboniser and dispose of into the site general/non-food waste bins.
12. Close off the Decarboniser outlet .
13. Switch the tank power back on and begin refilling the Decarboniser with fresh water to the correct level and add the correct amount of fresh Decarboniser powder. Ensuring you wear safety gauntlets and goggles throughout the refilling process.
14. Once refill is completed, check operating temperature is increasing towards the 65 degree C target temperature.
15. Ensure all PPE, COSHH sheets, wall charts and lid stickers are fully operational/visible and if not replace.
16. Check machine for correct operation.
17. Carry out PAT test and affix dated pass sticker to the outer casing if passed. If machine fails and cannot be repaired at the time cut the plug and cable off at the machine and report this to your site, contact.
18. Remove/dispose of any faulty or replaced parts and ensure area is left in a safe and tidy condition.
19. Report back to the site contact, sign off any permits and complete job form.
20. Leave site.

P.P.E. Required for Process

Safety Shoes, Hi-Viz Vest, Safety Gauntlets & Goggles

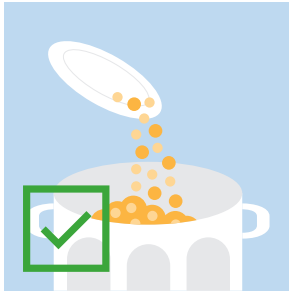
Equipment Required for Process

FOG absorbent pads , filter, outlet hoses ,water hose, safety barriers, basic tool kit, paper towel roll , Decarboniser powder, relevant COSHH sheets, wall charts and lid stickers

Appendix 9 – FOG best practice

Checklist for managing fats, oils and grease in your kitchen

DOs



Do wipe and scrape plates, pans and utensils prior to washing (and put the waste into the bin).



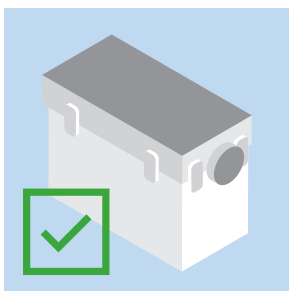
Do collect waste oil in a suitable secure container.



Do arrange for oil to be collected by an approved and licensed waste contractor.



Do use strainers in sink plug holes (and empty contents into the bin).

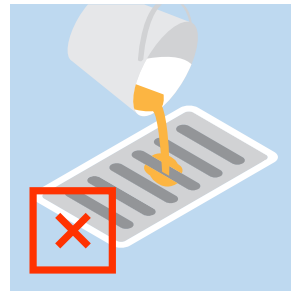


Do maintain grease traps and biological dosing equipment regularly.

DON'Ts



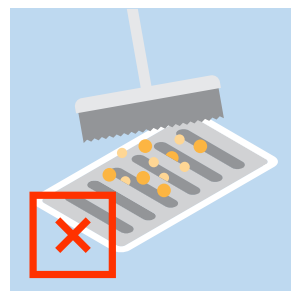
Do not put cooking oil, fat or grease down the sink.



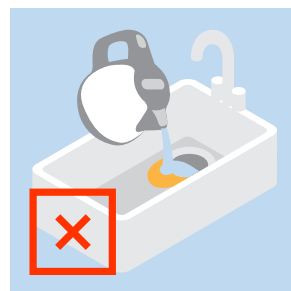
Do not pour waste oil, fat or grease down the drain.



Do not put food scrapings into the sink (place in the rubbish bin).



Do not sweep waste into floor drains (place rubbish in bin).



Do not pour boiling hot water down the sink to try to dissolve fat and grease. It does not work!

The simple guidelines above will significantly help to maintain free flowing water both within the drains of the restaurant and in the sewerage system.

